

2 A roadmap to sustainable agriculture

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To guide the development to a more sustainable agriculture a roadmap has been formulated along five questions concerning profit, planet and people aspects: why, what, where, how much and how. The challenge is the combination of all questions and aspects instead of the deepening of one of them to obtain a more sustainable agriculture.

Introduction:

Sustainability or the lack of sustainability is often described in economical aspects (profit), ecological aspects (planet) and socio-cultural aspects (people). Sometimes (the lack of) sustainability is addressed at a high scale level and formulated as a problem: insufficient food to feed the world population, sometimes it is addressed at a low scale level and formulated as a goal: continuity of farms. Often, it is not clear what is meant by agriculture. Is it agricultural production for the world market or is it enlarged agriculture for the local market? Shortly, there often is a perfect Babel confusion of tongues.

Therefore a roadmap has been formulated along five questions, to guide the analysis and the development to sustainable agriculture.

The Roadmap

Basically, the roadmap addresses five basic questions:

- Why: what is the problem with current agriculture, why is it a problem and for whom?
- What: what do we understand by sustainable agriculture? What do we want?
- Where: where do we expect spatial impacts of sustainable agriculture?
- How much: what is the balance of costs and profits?

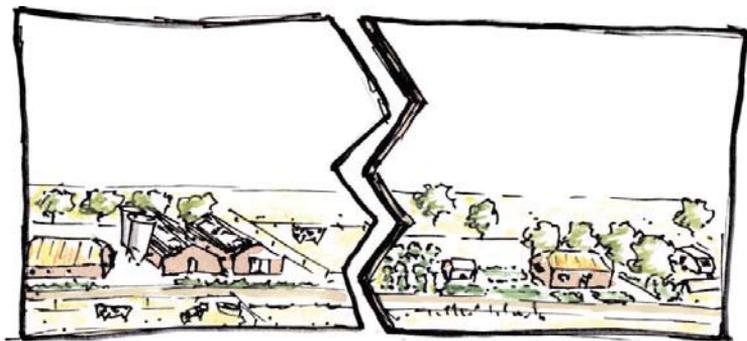
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- How: how can we achieve sustainable agriculture?

During testing of the roadmap, four additional issues were raised:

- Make clear what type of agriculture you focus on: in our studies we focused on primary production for the world market as well as on enlarged agriculture for the local market (frame 1);
- Make clear what scale level you focus on: in our studies we mainly focussed on the regional or local scale, even if they present lessons

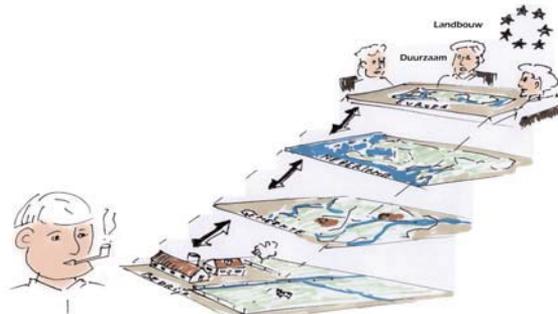
Figure 2.1
Both pictures represent agriculture. On the left, a modern mono-functional farm producing for the world market, on the right a multi-functional farm concentrating on landscape. Both can be or become sustainable.



learned from elsewhere in Europe (frame 2);

- Identify the relevant aspects of profit, planet and people at the preferred scale level. We call an aspect relevant if a governing body

Figure 2.2
Not all aspects of sustainability are relevant at all scale levels. We distinguish continental, national, regional and local (farm) scales. Each scale has its own governing body, varying from the European parliament to the individual farmer.



has the ability to influence the aspect by policy. For example, the concern for the environment in the EU has led to the agreements on the implementation of the Nitrate Directive and Water Framework Directive. The way to achieve this goal is situated at a lower scale: at a national scale (translating EU policy into national regulations), regional scale or at the local or farm scale. It can be chosen to close nutrient circles at the regional level or at each individual farm.

- Indicators are needed to be able to monitor and evaluate the development towards sustainability. An elaborate list of indicators is available (Ten Pierik and Meeusen 2003). An indicator can be measured and a level can be agreed above which we call it sustainable. We went one step further and have allocated these aspects and indicators to the relevant scale.

Application of the Roadmap

Application of the Roadmap in practice requires the completion of a number of tables, together with the actors involved.

Addressing the 'Why' question is important as it underlines the urgency for change and actions. This question needs to be related to all three aspects People, Profit, Planet, and it is up to the stake holders involved to make any judgment about the relative importance of these three.

Table 2.1. Addressing the "Why?" question at various scales, to illustrate the case.

Scales	Profit	Planet	People
International/ European	<ul style="list-style-type: none"> • Limited competitiveness of European agricultural sector on world market 	<ul style="list-style-type: none"> • Exhaustion of natural resources • Decrease of biodiversity • Undesirable change of climate 	<ul style="list-style-type: none"> • Uncertainty about food availability
National	<ul style="list-style-type: none"> • Limited competitiveness of national agricultural sector on world market 	<ul style="list-style-type: none"> • Excessive use of land for production or activities • Limited awareness of environmental quality aspect 	<ul style="list-style-type: none"> • Uncertainty about food safety
Regional	<ul style="list-style-type: none"> • Limited competitiveness of agrarian holdings on consuming market and land market 	<ul style="list-style-type: none"> • High levels of nutrients in soil and water 	<ul style="list-style-type: none"> • High population pressure and therefore limited space for living and recreation
Local/Farm	<ul style="list-style-type: none"> • Low continuity of individual farms 	<ul style="list-style-type: none"> • Large amounts of water used 	<ul style="list-style-type: none"> • High population pressure and therefore limited space for living and recreation • Bad smell for inhabitants from neighbouring farms • Low attention to animal welfare • Bad conditions for human labour (safety and health)

Addressing the 'What?' question builds on the answers of at the 'Why?' question. What type of land use and what types of agriculture contribute to solving the problems identified during the 'Why?' questioning. This question also needs to be related to all three aspects People, Profit, Planet, and it is up to the actors involved to make any judgment about the relative importance of these three. Of course it should be in line with the relative importance given at the why question.

Table 2.2. Addressing the "What ?" question at different scales (see also table 1).

Scale	Profit	Planet	People
European	<ul style="list-style-type: none"> • Competitive European agricultural sector on world market 	<ul style="list-style-type: none"> • Preservation of natural resources • Preservation of biodiversity • Control of climate change 	<ul style="list-style-type: none"> • Food availability secured
National	<ul style="list-style-type: none"> • Competitive national agricultural sector on world market 	<ul style="list-style-type: none"> • Reduced amount of land for production or - activities • Awareness of environmental quality aspects 	<ul style="list-style-type: none"> • Food safety secured
Regional	<ul style="list-style-type: none"> • Competitive agrarian holdings on consuming market and land market 	<ul style="list-style-type: none"> • Low levels of nutrients in soil and water 	<ul style="list-style-type: none"> • Sufficient space for living and recreation • High quality of landscape
Farm	<ul style="list-style-type: none"> • Continuity of farm 	<ul style="list-style-type: none"> • Limited amount of water used 	<ul style="list-style-type: none"> • No agricultural smell for inhabitants • Attention for animal welfare • Good labour conditions

Addressing the 'Where?' question relates to the spatial dimensions and spatial arrangements of land use systems. For this assessment various indicators have to be identified and quantified for each of the three dimensions: profit, planet and people. An example of addressing the 'Where?' question is given by Rienks and Van den Bosch in chapter 4.

Addressing the question 'How much?' should be based on a cost-benefit analysis. All possible consequences of changes are translated into monetary terms (euro's), although it turns out to be extremely difficult to correctly estimate for example the benefits of clean drinking water and surface waters, or beautiful nature and landscapes.

'How' to establish a more sustainable agriculture is a complicated question. Many actors are involved and the ultimate picture of sustainable agriculture is not uniform for all actors, and there is limited knowledge about the required responsibility of the different levels of government. Illustrations of this search are presented in the following chapters.

References

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