Sustainability

The PG Tool and its use within iSAGE

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Sustainability

Bruntland 1987

Development that meets the needs of the present without compromising the ability of future generations to meet their own needs

FAO

....conserves land, water, plant and animal genetic resources, is environmentally non-degrading, technologically appropriate, economically viable and socially acceptable...
Sustainability

- FAO SAFA
- 4 pillars approach to sustainability

Unless good governance is seriously considered, sustainability will remain a mirage
Overused

- Question what is being claimed
- Question how it was assessed

... the phrase is utterly meaningless because the body responsible for certifying palm oil is made up of some of the most destructive growers and producers .... a henhouse insurance scheme run by foxes...
Sustainability Assessments on farm

- What questions are being asked
- What answers are being provided
- How are those answers arrived at
- What is the purpose?
The Public Goods (PG) Tool

- Originally developed in 2011 as an assessment tool for organic farmers
- Subsequent research projects have developed it for use within a variety of systems
What are Public Goods?

- **Available to all** – Others cannot be excluded from the benefit
- **Non-Rival** – If “consumed” by one person, still available to others
  
  However, different grades, pure public goods are rare
- Supply not secured through markets, users have no incentive to pay
- May be used to justify continued financial support
Use of the PG Tool in recent projects

1. **Natural England: Tool development**
   - Pilot on 40 organic farms

2. **Conventional pilot (project OF0398)**
   - 32 conventional farms

3. **FP7 Sustainable, Organic and Low Input Dairying project (SOLID)**
   - 70 organic and 32 low input dairy farms in 9 countries

4. **Waitrose / TSB funded project led by IBERS**
   - 8 farms assessed in Wales

5. **Adapted the tool for use in an INTERREG funded project on hedges and woodfuel**

6. **Currently being used as part of the UK Research Council funded project SEEGSLIP**
   - 60 Pasture for Life certified farms
How did we adapt the PG Tool in iSAGE

**Literature Review**
Outcome and process indicators

**Indicator Survey with Experts**
Greece, UK, France, Italy, Spain, Finland, Turkey
35 responses

**Tool Adaptation**
Social, animal welfare and governance indicators

**On-Farm Testing**
2 x farms in Greece, UK, France, Italy, Spain
What is the PG Tool?

- Multi criteria, analysis based assessment
- Immediate results
- Mixture of quantitative and qualitative indicators
- Simple programming in Excel-spreadsheet
  
  Non weighted averages
Public Goods ‘spurs’

<table>
<thead>
<tr>
<th>Environmental integrity</th>
<th>Social wellbeing</th>
<th>Economic resilience</th>
<th>Good governance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agricultural Systems Diversity</td>
<td>Social Capital</td>
<td>Farm Business Resilience</td>
<td>Governance</td>
</tr>
<tr>
<td>Agri-Environmental Management</td>
<td></td>
<td>Food Security</td>
<td></td>
</tr>
<tr>
<td>Animal Health Management</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Animal Welfare Management</td>
<td></td>
<td></td>
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<tr>
<td>Energy and Carbon</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Fertiliser Management</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Soil Management</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Landscape and Heritage Features</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Water Management</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
How does it work?

▪ Farmers answer questions associated with the 13 spurs

▪ Each answer is ranked on a 1-5 scale

▪ An overall average for each spur is generated

▪ The results are presented in a radar diagram
PG Tool – conducting the assessment

**Structure:** On farm interview, between an experienced researcher and farmer / client

**Duration:** 3-4 hours (including 30 min farm tour)

**Goal:** Promote discussion around sustainability and what works for an individual business
PG Tool – results

- Scores provide an indication of current performance
  
  1 = poor performance
  
  5 = very good performance

- Based upon industry recommendations and benchmarks

- Providing a holistic overview of the farm business
Remember

The PG Tool provides a snapshot of current sustainability performance
Next Steps

- Acting on the results
- Where to get the information?
Regenerative agriculture

- A system of farming principles and practices that increases biodiversity, enriches soils, improves watersheds, and enhances ecosystem services.
- Aims to capture carbon in soil and aboveground biomass, reversing current global trends of atmospheric accumulation.
- At the same time, it offers increased yields, resilience to climate instability, and higher health and vitality for farming and ranching communities.
- The system draws from decades of scientific and applied research by the global communities of organic farming, agroecology, Holistic Management, and agroforestry.

http://www.regenerativeagriculturedefinition.com
1. **Signposts to Sustainability**

**iSAGE Toolbox**

2. **Sageguard**

2.1 **Sageguard.net**

2.2 **Sageguard Cards**
Developing the Toolbox

- iSAGE partners select sustainability indicators that they feel relevant
- Sustainability questions in the PG Tool

→ SIGNPOSTS TO SUSTAINABILITY
1. **Signposts to Sustainability**

- PG Tool adapted for a quick online assessment

- Series of questions: **Yes**  **No**
  
  + a third option when necessary, e.g. unknown

- Basis for the iSAGE Toolbox
1. **Signposts to Sustainability**

4 dimensions of Sustainability and Livestock:
- Environmental integrity
- Livestock
- Economic resilience
- Good governance
- Social well being
1. **Signposts to Sustainability**

Each dimension has **3 associated themes**

**Livestock**
- Animal Health
- Animal Welfare
- Livestock Management
1. **SIGNPOSTS TO SUSTAINABILITY**

Each theme has **3 sub themes**

**Livestock management**

- Flock productivity
- Genetic selection
- Grazing
1. **Signposts to Sustainability**

Series of indicators associated with each sub theme

**Flock productivity**
- Lambing success
- Weaning success
- Culling practices
# 1. SIGNPOSTS TO SUSTAINABILITY – Excel background

<table>
<thead>
<tr>
<th>Dimension</th>
<th>Theme</th>
<th>Sub Theme</th>
<th>Indicator</th>
<th>Questions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Environmental Integrity</td>
<td>Ecological</td>
<td>Soil</td>
<td>Erosion</td>
<td>Are there signs of erosion on your farm?</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Compaction</td>
<td>Are there any signs of compaction across your fields?</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Quality</td>
<td>Do you consider soil biology when managing your soils?</td>
</tr>
<tr>
<td>Water</td>
<td>Use</td>
<td></td>
<td></td>
<td>Do you monitor your farm water use?</td>
</tr>
<tr>
<td></td>
<td>Availability</td>
<td></td>
<td></td>
<td>Do you use replenishable water sources, if you are not reliant on mains?</td>
</tr>
<tr>
<td></td>
<td>Water quality</td>
<td></td>
<td></td>
<td>Have you recently sampled the water quality of your water sources?</td>
</tr>
<tr>
<td>Atmosphere</td>
<td>Direct pollutants</td>
<td></td>
<td></td>
<td>Have you considered the direct pollutants that your farming practice emits?</td>
</tr>
<tr>
<td></td>
<td>Indirect pollutants</td>
<td></td>
<td></td>
<td>Have you considered the indirect pollutants that your farming practice emits?</td>
</tr>
<tr>
<td></td>
<td>Management of pollutants</td>
<td></td>
<td></td>
<td>Do you have measures in place to limit atmospheric pollution?</td>
</tr>
</tbody>
</table>
1. **SIGNPOSTS TO SUSTAINABILITY – question/answer**

Answer the question associated with the indicator

**Lambing success**

✓ Do you lose over 5% of lambs between birth and weaning?

- **YES**
- **NO**
1. **Signposts to Sustainability – results summary**

<table>
<thead>
<tr>
<th>Environmental Integrity</th>
<th>Soil</th>
<th>Erosion</th>
<th></th>
<th>Connection</th>
<th>Quality</th>
<th></th>
<th>Water</th>
<th></th>
<th>Water Quality</th>
<th></th>
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</thead>
<tbody>
<tr>
<td></td>
<td>Water</td>
<td>Use</td>
<td></td>
<td>Availability</td>
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<tr>
<td></td>
<td>Atmosphere</td>
<td>Direct pollutants</td>
<td></td>
<td>Indirect pollutants</td>
<td>Management of pollutants</td>
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<tr>
<td></td>
<td>Farmland Biodiversity</td>
<td>Flora and fauna</td>
<td></td>
<td>Diversity of production</td>
<td>Trees and hedges</td>
<td></td>
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<td></td>
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</tr>
<tr>
<td></td>
<td>Cultural and Heritage</td>
<td>Historical features</td>
<td></td>
<td>Genetic diversity</td>
<td>Traditional livestock management</td>
<td></td>
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<tr>
<td></td>
<td>Environmental Management</td>
<td>Conservation plans</td>
<td></td>
<td>Ecosystem connectivity</td>
<td>Ecosystem enhancing practices</td>
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<tr>
<td></td>
<td>Fertiliser</td>
<td>Soil testing</td>
<td></td>
<td>Fertiliser plan</td>
<td>Nutrient balance</td>
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<tr>
<td></td>
<td>Energy and Carbon</td>
<td>Renewable energy</td>
<td></td>
<td>Vehicles</td>
<td>Carbon</td>
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<tr>
<td></td>
<td>Waste Management</td>
<td>Recycling</td>
<td></td>
<td>Reducing</td>
<td>Hazardous products</td>
<td></td>
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</tr>
<tr>
<td></td>
<td>Livestock</td>
<td>Flock</td>
<td></td>
<td>Body Condition Score</td>
<td>Replacements</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>Flock Plan</td>
<td>Health plan</td>
<td></td>
<td>Antibiotics</td>
<td>Parasites</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>Disease Incidence</td>
<td>Flock/herd health</td>
<td></td>
<td>Quarantine</td>
<td>Proactive management</td>
<td></td>
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<tr>
<td></td>
<td>Feeding Systems</td>
<td>Intensive systems</td>
<td></td>
<td>Concentrates</td>
<td>Forage</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>Housing Characteristics</td>
<td>Condition of housing</td>
<td></td>
<td>Space</td>
<td>Water Availability</td>
<td></td>
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</tr>
</tbody>
</table>
2. **SAGEGUARD**

- Decision support tool
- Find information to help move towards a more sustainable system
- A set of links to further information provided for each subtheme / question
2.1 SAGEGUARD.NET

- Home page describes how to use the Toolbox

- Choose where to start:
  • Explore dimensions or themes
  • Find help with an issue

What is Sageguard

A platform for developing knowledge within the field of sustainable sheep and goat production

Welcome to Sageguard, a platform that hopes to help answer your questions and provide guidance around how to sustainably produce sheep and goats within Europe.

We cannot guarantee we have all the answers but through our interactive website you can delve into the depths of what constitutes sustainability, what to look for, and how you can implement these practices to improve your business for the future. Sustainability is not just a short term fix, it is a method of production that guides the reasoning behind your own decisions across every aspect of your business.

Navigate through the hierarchical levels of sustainability to reach your answers, using the dimensions Cards below or the menu on the top right of your screen.
2.1 SAGEGUARD.NET

- Dimension
  Environmental integrity

- Theme
  Ecological

- Sub Theme
  Soil
Soil erosion is the process by which soil primary particles and aggregates are removed and lost from their point of origin by wind or water, or even mass wasting from gravitational forces and agricultural activities. In agricultural soils, compaction is caused by compression from machinery traffic or stock trampling. Soil biology is the study of soil biota and the interactions they have with each other and their environment.

**Erosion**
- Erosion | National Geographic
- Soil erosion | WWF
- Soil erosion | Defra
- Soil erosion | BBC
- Soil erosion | Heritage Land Bank
- Soil erosion | Ontario Government

**Compaction**
- Soil compaction | Farmers Weekly
- Soil compaction | AHDB Dairy
- Soil compaction | Soil & Water
- Soil compaction | Väderstad
- Soil compaction | University of Wisconsin

**Quality**
- Soil quality | Nature Education
- Soil quality | Soil Association
- Soil quality | Swarm Hub
- Soil quality | Science Direct
- Soil quality | Australian Government
2.2 SAGEGUARD CARDS

- An offline resource arranged in a similar manner to Signposts to Sustainability
- Designed to provoke thought and discussion
2.2 Sageguard Cards

- **EROSION**
  - Are there any signs of erosion on your farmland?

- **COMPACTION**
  - Are there any signs of compaction across your fields?

- **QUALITY**
  - Have you considered soil biology when managing soil quality?

[sageguard.net]
Sustainability on your farm

Each farm has a unique set of circumstances...
Toolbox Team

Diagram showing the relationship between IT, Design, and Research.
Task 1.4: Toolbox development
Partners involved: 30 (ORC - leader), 12 (UNIVPM), 16 (CSIC).
Review the results of tasks 1.2 and 1.3 and use the results to develop recommendations and advice on tools for practical decision-making. These will be made available online. The toolbox will be available in English, Italian, Greek and Spanish. The activities and workshops in this WP involving stakeholders will be utilised to ensure that the toolbox is user-friendly and the recommendations are relevant to industry stakeholders. This activity will be coordinated through WP6 to avoid overlap of requests from other WPs and ensure efficient collection of data.
The outcome of this task will be a tool box of recommendations regarding indicators (especially for social, economic and animal welfare) and tools suitable for practical decision-making. This toolbox will be translated into Spanish, Italian and Greek as well as being available in English.

= design hints     = concept hints
What is the PG Tool from a design point of view:

- a huge(!) **Excel file**
- a list of indicators (e.g. ‘Erosion’) **nested** in a list of topics (e.g. ‘Soil’) nested in a list of dimensions (e.g. ‘Environmental’)
- mostly **recommendations**, few **direct questions**
  - some **tips for practical decision-making**
How to match content with container?

How to match function with functionality (=features)?

- PG Tool
- Toolbox

user*-friendly

practical decision making

user*
Design - address the target

How to match content with container?

Recommendations and advice

Toolbox 1.4

How to match function with functionality (=features)?

Practical decision making

Portability
Design - the concept

- **The concept.** If you have a smartphone or a penknife in your pocket, you can have Sageguard Cards as well, maybe as your keyring.

- **The meaning.** Not to study, not to just play with, you can use these cards as a starting point towards a sustainable system.

- **The symbol.** The playing cards as a game, or the tarot ones as a way to tell a story about someone, are both an ancient symbol and part of everyday life from the Far Eastern countries to the European ones.
Design - first draft
Design
- final version
Design - the graphics

- Each dimension (e.g. ‘Livestock’) has a **colour** (e.g. ‘oxblood’). Each subtheme (e.g. ‘Soil’) has an **icon** to better visualise it. Each indicator card (e.g. ‘Erosion-Compaction-Quality’) has a **number** to better remember it when you want to search for it.

- At the end of every dimension there is also a **QR code** that links directly to the iSAGE website. At the bottom of every indicator card there is instead the **link** to the Sageguard.net website.

- The **pattern** of lines and circles echoes the paths / furrows and the moon / crop rotation, or the notes (lines) we can jot down to intercept the farm’s world closed system (circles).
The subtheme cards are now single *posts*, everyone within their *categories* (dimension and theme) and *tags* (keywords for search)

The categories are also *pages* showed in the *breadcrumbs* and in the *navigation menu*

The questions in the indicator cards are now replaced with the *links*, guidelines towards sustainability

The *pattern* of Sageguard Cards is used as a button to click on the topic, and the icon of every subtheme is now a full size image displayed alongside the links

The *responsive design* supports usability, no matter the device
Design - the sustainability

- The CMS (Content Management System) is WordPress, released under a **GNU General Public License** (**GNU GPL** or **GPL**), a widely-used free software license that guarantees end users the freedom to run, study, share, and modify the software.

- The hosting server is Bluehost, recommended by WordPress.org since 2005.

- The printing press is **FSC** (Forest Stewardship Council) certified.
WHERE DO YOU THINK THE NAME CAME FROM?
Solution

a starting point towards a sustainable system

the moon / crop rotation

guidelines towards sustainability

an ancient symbol

recommendations

SAFGE GUARD
Further information

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Thank ewe!