

# Sustainability

## The PG Tool and the iSAGE Toolbox

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Innovation for Sustainable  
Sheep and Goat  
Production in Europe



National Sheep Association





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- What is Sustainability?
- Sustainability Assessments on farm
- The Public Goods Tool
- Sustainability Assessment results: Greece
- Developing a toolbox of recommendations
- Opportunity to provide feedback on the current toolbox



# Sustainability

## **Bruntland 1987**

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

## **FAO**

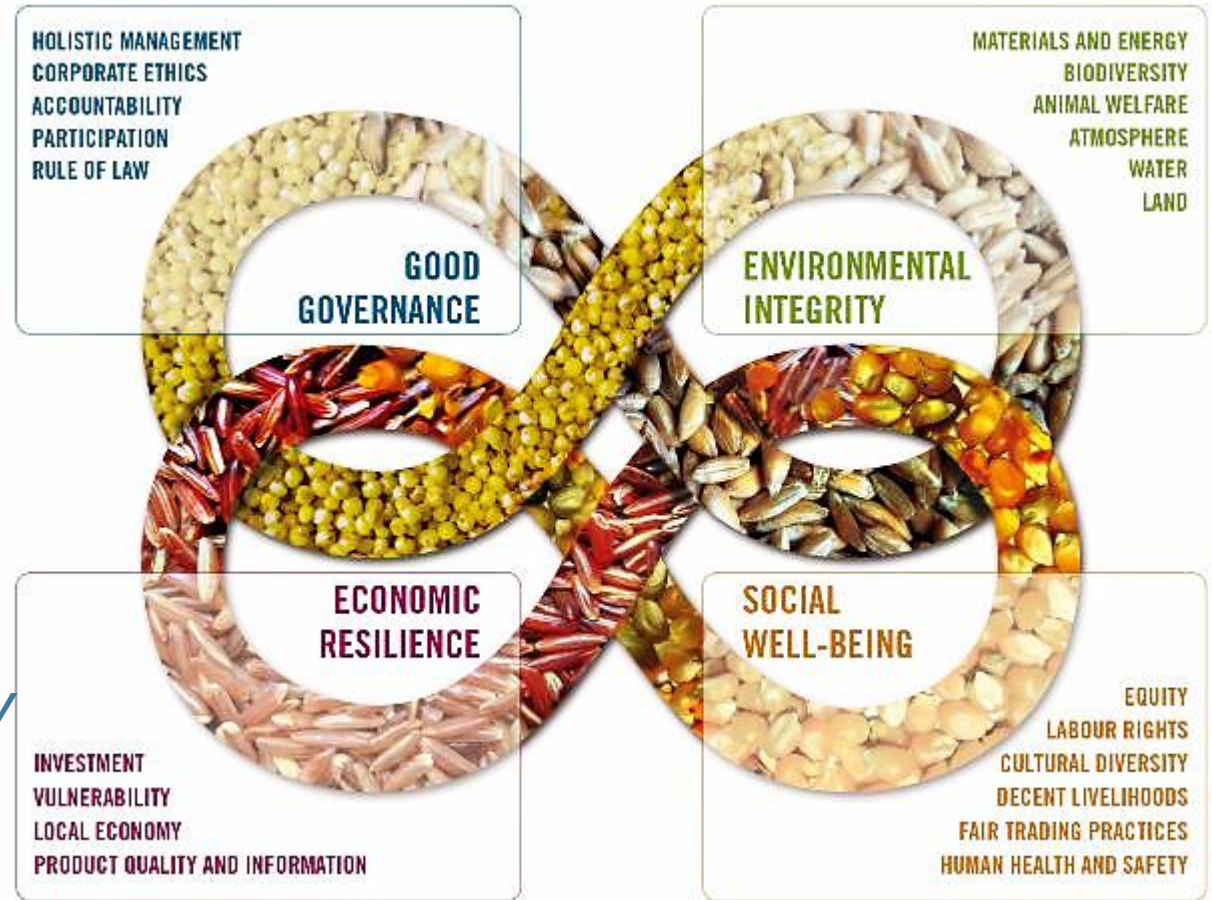
....conserves land, water, plant and animal genetic resources, is environmentally non-degrading, technologically appropriate, economically viable and socially acceptable...



# Sustainability

- FAO SAFA
- 4 pillars approach to sustainability

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







## Sustainability Assessments on farm

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- What questions are being asked
- What answers are being provided
- How are those answers arrived at
- What is the purpose?



## The PG Tool

Originally developed in 2012  
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



# Use of the PG Tool in recent projects

1

2

3

4

5

6

NATURAL  
ENGLAND: TOOL  
DEVELOPMENT

CONVENTIONAL  
PILOT  
(PROJECT OF0398)

FP7 SUSTAINABLE,  
ORGANIC AND LOW  
INPUT DAIRYING  
PROJECT (SOLID)

WAITROSE / TSB  
FUNDED PROJECT  
LED BY IBERS

ADAPTED THE TOOL  
FOR USE IN AN  
INTERREG  
FUNDED PROJECT  
ON HEDGES AND  
WOODFUEL

CURRENTLY BEING  
USED AS PART OF  
THE UK RESEARCH  
COUNCIL FUNDED  
PROJECT SEEGSLIP

pilot on 40  
organic farms

32 conventional  
farms

70 organic and 32  
low input dairy farms  
in 9 countries

8 farms  
assessed in  
Wales

60 Pasture for  
Life certified  
farms

THE ORGANIC  
RESEARCH  
CENTRE  
ELM FARM







# How did we adapt the PG Tool in iSAGE

## LITERATURE REVIEW

**Outcome and process indicators**

## INDICATOR SURVEY WITH EXPERTS

**35 responses Greece, UK, France, Italy, Spain, Finland, Turkey**

## 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

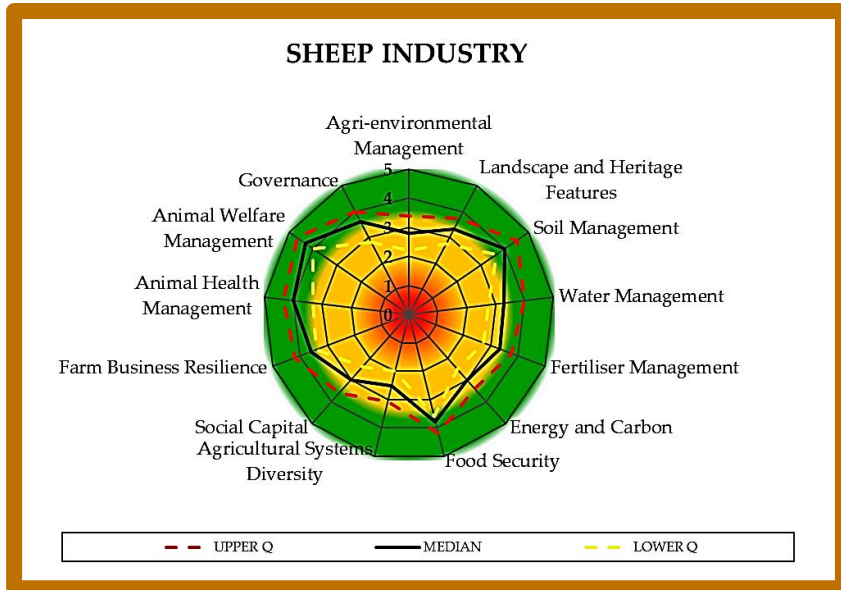


# Public Goods ‘spurs’

Environmental integrity	Social wellbeing	Economic resilience	Good governance
<ul style="list-style-type: none"><li>• Agricultural Systems Diversity</li><li>• Agri-Environmental Management</li><li>• Animal Health Management</li><li>• Animal Welfare Management</li><li>• Energy and Carbon</li><li>• Fertiliser Management</li><li>• Soil Management</li><li>• Landscape and Heritage Features</li><li>• Water Management</li></ul>	<ul style="list-style-type: none"><li>• Social Capital</li></ul>	<ul style="list-style-type: none"><li>• Farm Business Resilience</li><li>• Food Security</li></ul>	<ul style="list-style-type: none"><li>• Governance</li></ul>



# How does it work?



- Farmers answer questions associated with the 13 spurs
- Each answer is ranked on a **1-5 scale**, cumulatively generating an overall average for each spur
- The results are presented in a radar diagram





# PG Tool – conducting the assessment



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

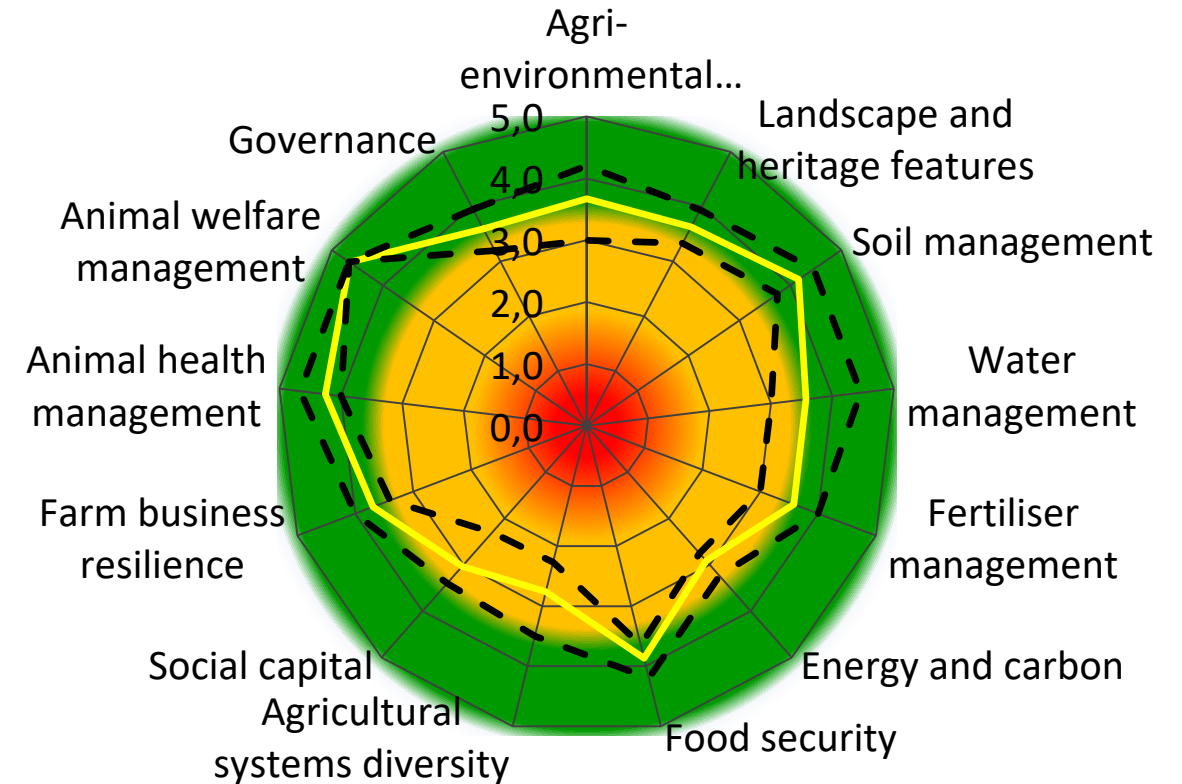
**Duration:** 3-4 hours  
(including 30 min farm tour)

**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

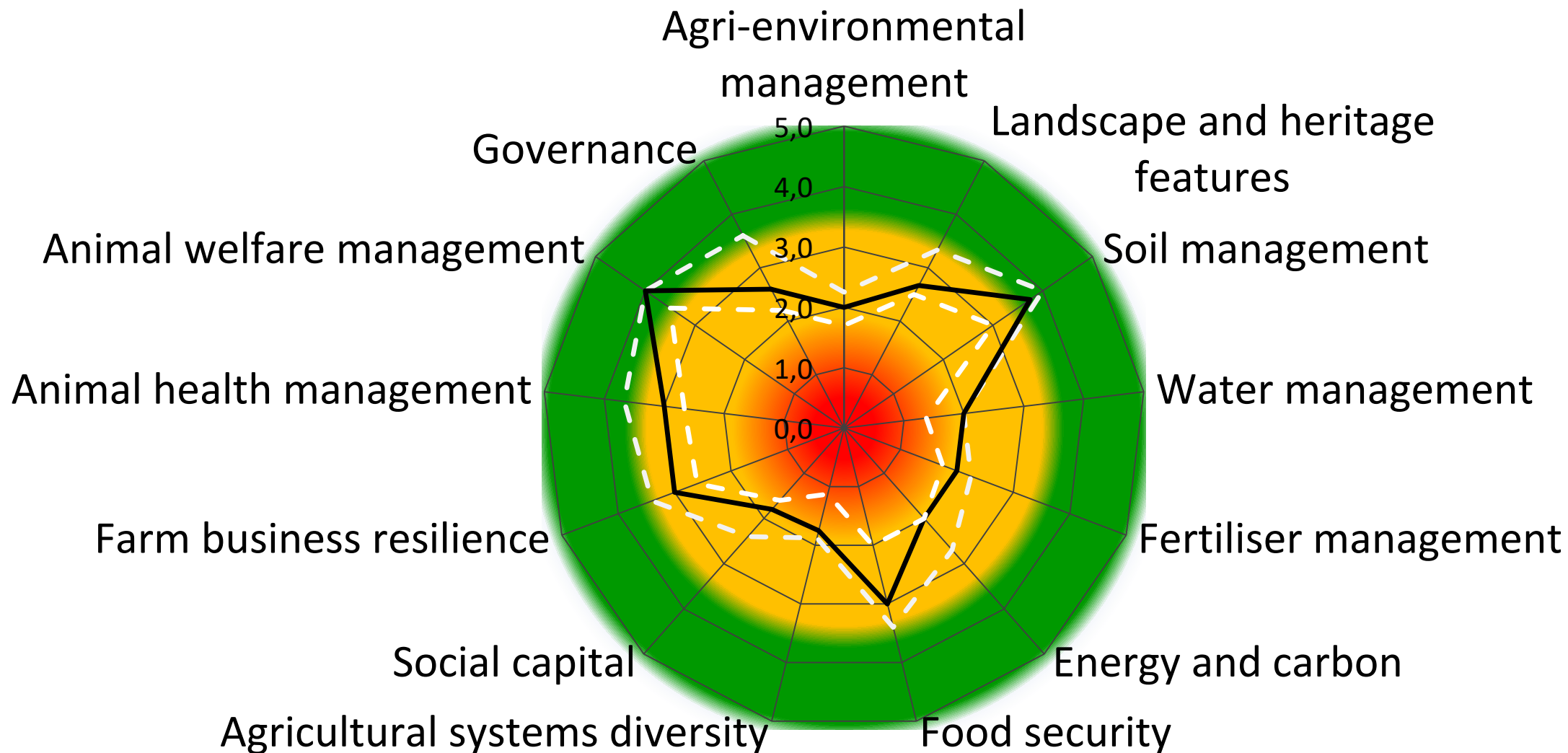




# Farms assessed in Greece

		TYPOLOGY	GREECE TOTAL
Sheep	Dairy	Semi-intensive or extensive (e.g. normally pasture fed animals)	4
		Intensive (e.g. high input of purchased feedstuff)	3
	Dual Purpose (farms where the farmer sees value in 2 or more different products e.g. meat and wool, meat and dairy)		4
	Meat	Semi-intensive or extensive (e.g. normally pasture fed animals)	0
		Intensive (e.g. high input of purchased feedstuff)	0
Goat	Dairy	Semi-intensive or extensive (e.g. normally pasture fed animals)	1
		Intensive (e.g. high input of purchased feedstuff)	5
	Dual Purpose (farms where the farmer sees value in 2 or more different products e.g. meat and wool, meat and dairy)		2
	Meat	Semi-intensive or extensive (e.g. normally pasture fed animals)	0
		Intensive (e.g. high input of purchased feedstuff)	0
		<b>TOTAL</b>	<b>19</b>

# PG Tool results - Greece



N = 19

— Upper Quartile — Median — Lower Quartile





# Remember

The PG Tool provides  
a snapshot of current  
sustainability performance





A group of people, including men and women, are gathered around a metal pen containing several white sheep. One man in a light-colored shirt is reaching into the pen. The background shows a green field and a dark SUV. A semi-transparent circular overlay is on the left side of the image, containing the text 'Next Steps' and a list of two items.

# Next Steps

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



# iSAGE Toolbox

## 1. SIGNPOSTS TO SUSTAINABILITY

## 2. SAGEGUARD

### 2.1 SAGEGUARD.NET

### 2.2 SAGEGUARD CARDS



# Developing the Toolbox

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

➔ **SIGNPOSTS TO SUSTAINABILITY**





# 1. SIGNPOSTS TO SUSTAINABILITY SUSTAINABILITY TOOL



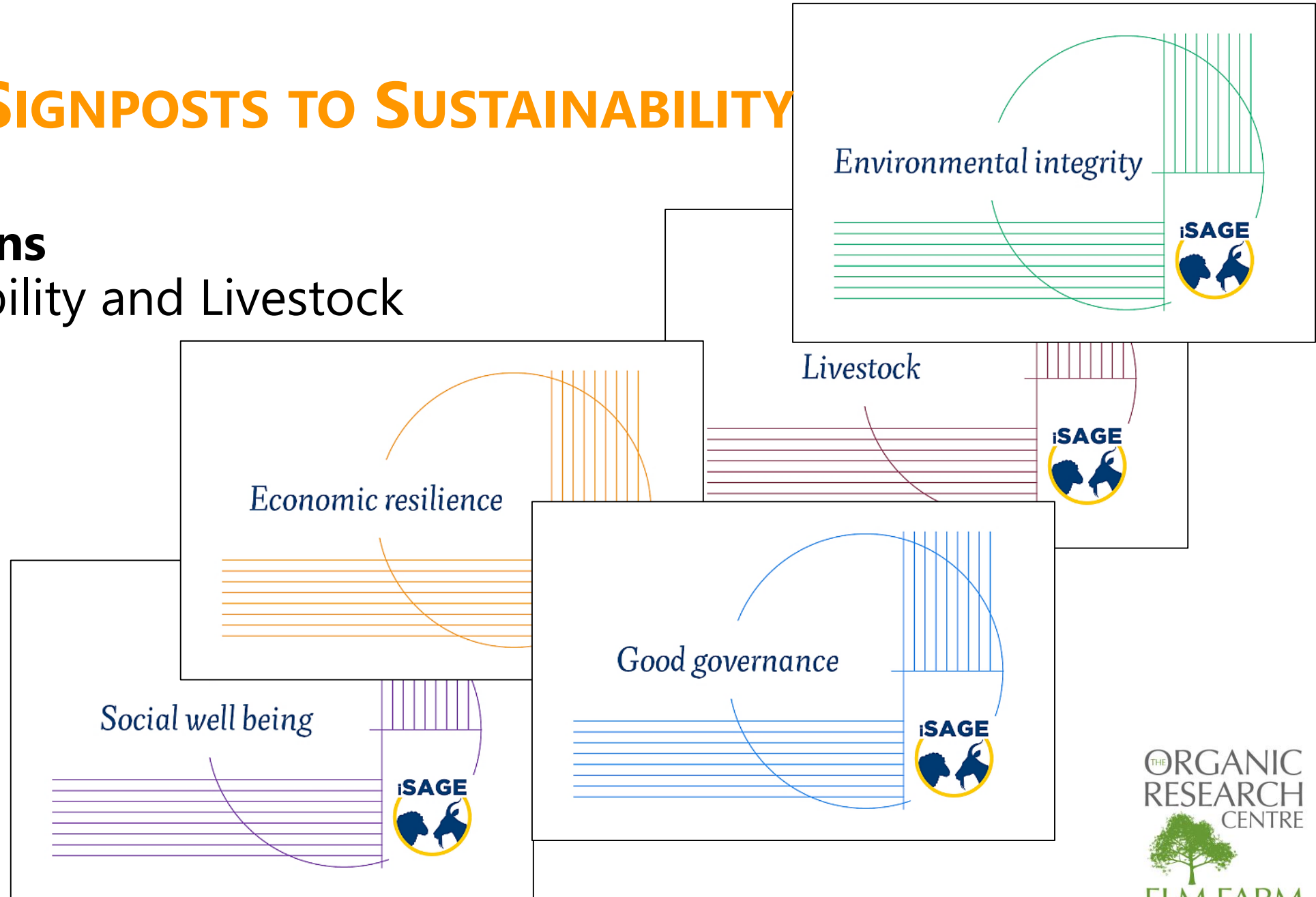
# 1. SIGNPOSTS TO SUSTAINABILITY

- 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

## 5 dimensions of Sustainability and Livestock



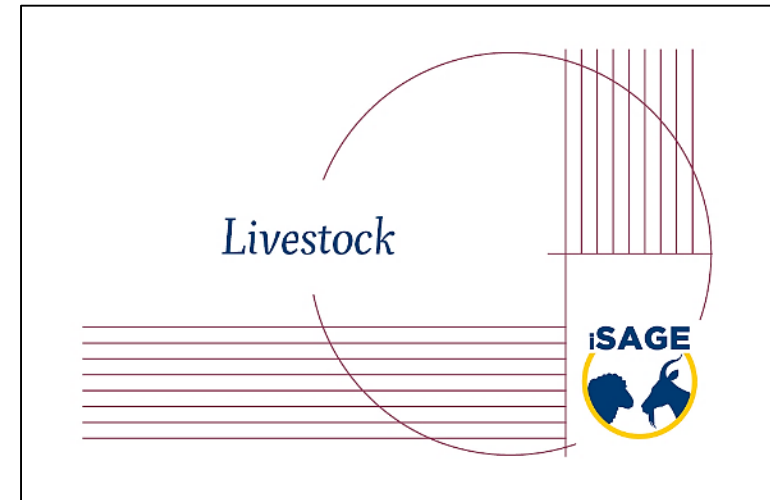


# 1. SIGNPOSTS TO SUSTAINABILITY

Each dimension has **3 associated themes**

## Livestock

- Animal Health
- Animal Welfare
- Livestock Management





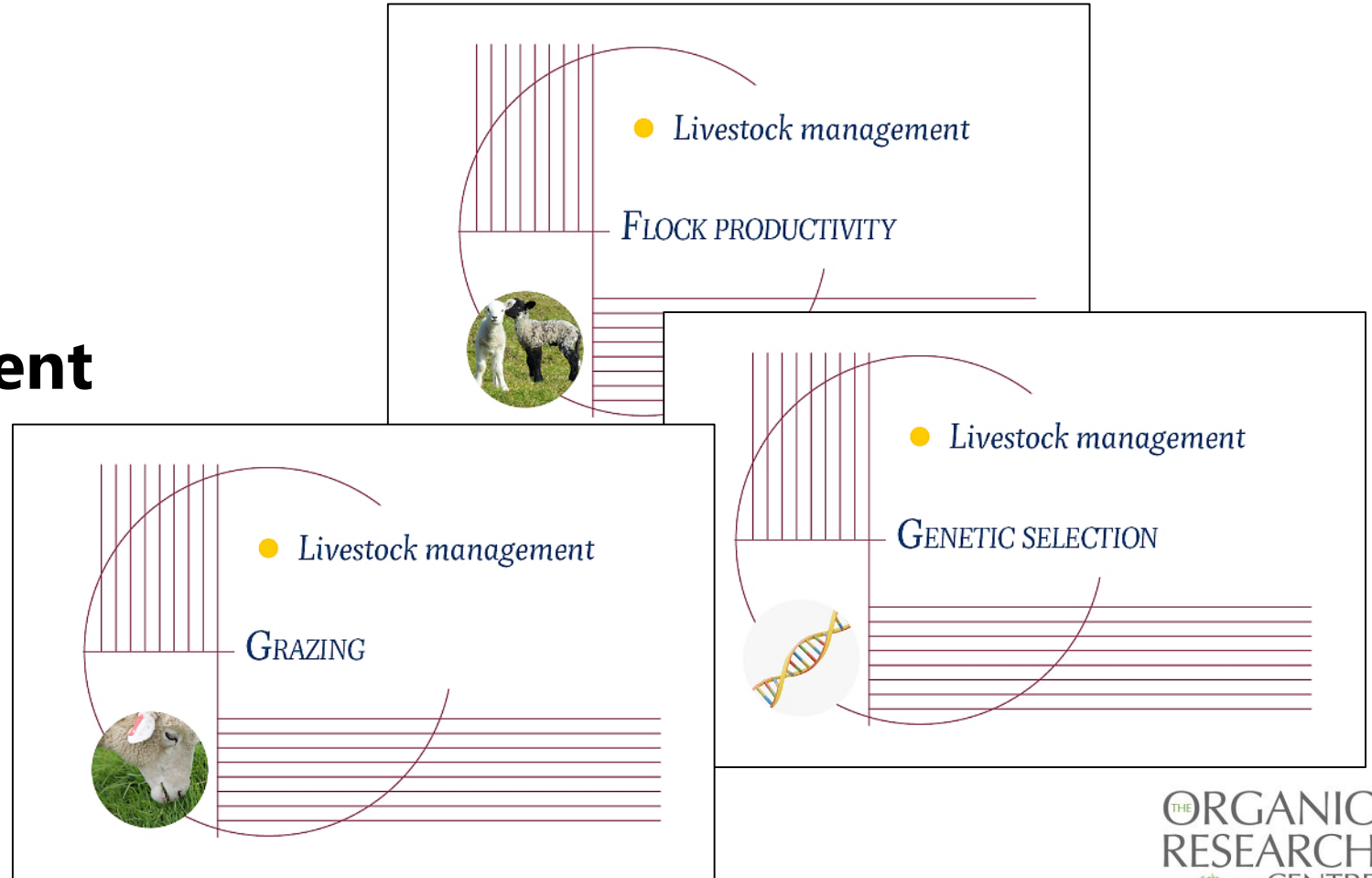


# 1. SIGNPOSTS TO SUSTAINABILITY

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

A	B	C	D	E
Dimension	Theme	Sub Theme	Indicator	Questions
Environmental Integrity	Ecological	Soil	Erosion	Are there signs of erosion on your farm?
			Compaction	Are there any signs of compaction across your fields?
			Quality	Do you consider <i>soil biology</i> when managing your soils?
		Water	Use	Do you monitor your farm water use?
			Availability	Do you use <i>replenishable</i> water sources, if you are not reliant on mains?
			Water quality	Have you <i>recently</i> sampled the water quality of your water sources?
		Atmosphere	Direct pollutants	Have you considered the <i>direct pollutants</i> that your farming practice emits?
			Indirect pollutants	Have you considered the <i>indirect pollutants</i> that your farming practice emits?
			Management of pollutants	Do you have measures in place to limit atmospheric pollution?



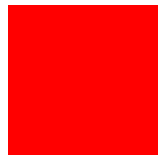
# 1. SIGNPOSTS TO SUSTAINABILITY – question / answer

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

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





## 2. SAGEGUARD

WEBSITE and CARDS



## 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

## NAVIGATION



## 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



Toolbox for sheep and goat systems sustainability

### 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



Is your business sustainable?  
Quiz!

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

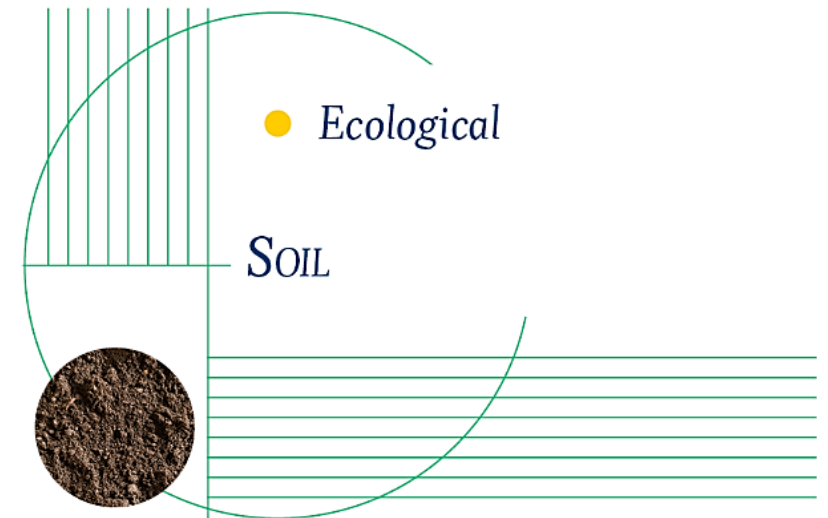
- Dimension  
*Environmental integrity*
- **Theme**  
*Ecological*
- **Sub Theme**  
*Soil*



Toolbox for sheep and goat systems sustainability

### Ecological

[Sageguard.net](#) > [Environmental integrity](#) > Ecological

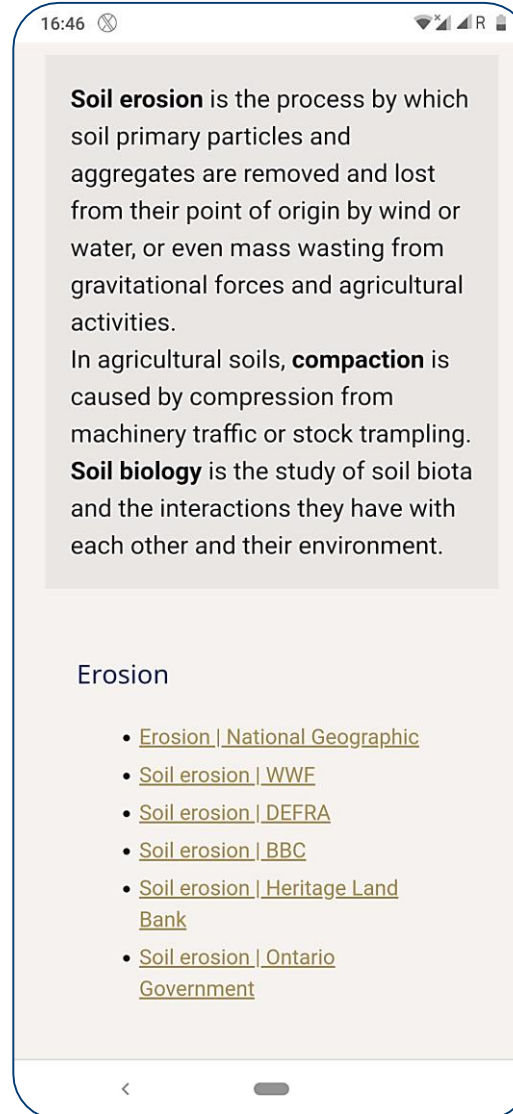






# 2.1 SAGEGUARD.NET

- **Indicator question**  
*Erosion*
- Responsive design for mobile



## Soil

In Environmental integrity, Ecological soil erosion, soil compaction, soil quality

[Sageguard.net](#) > [Sageguard Cards](#) > 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 | Vaderstad](#)
- [Soil compaction | University of Wisconsin](#)

### Quality

- [Soil quality | Nature Education](#)
- [Soil quality | Soil Association](#)
- [Soil quality | Swarm Hub](#)
- [Soil quality | ScienceDirect](#)
- [Soil quality | Australian Government](#)





## 2.2 SAGEGUARD CARDS



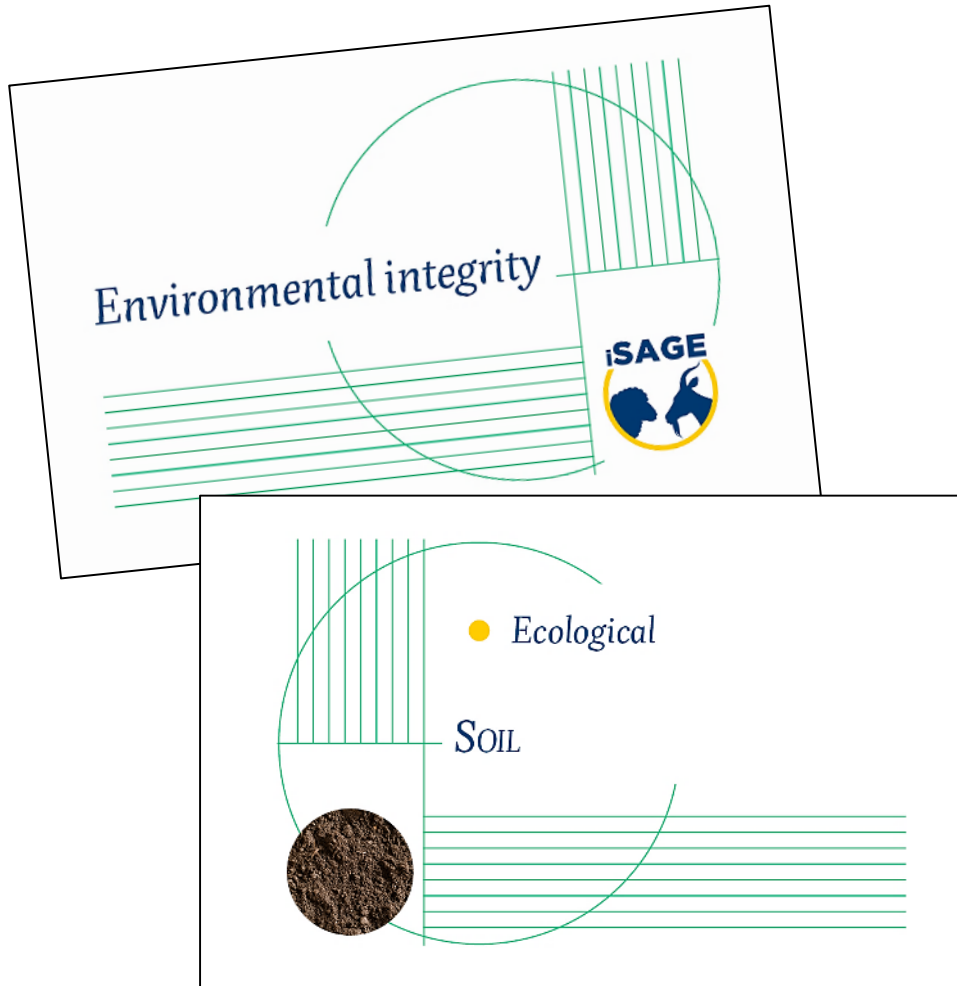
## 2.2 SAGEGUARD CARDS

- An offline set of cards arranged in a similar manner to Signposts to Sustainability
- Designed to provoke thought and discussion





## 2.2 SAGEGUARD CARDS



<b>EROSION</b> Are there any signs of erosion on your farmland?	<b>COMPACTION</b> Are there any signs of compaction across your fields?
<b>QUALITY</b> Have you considered <i>soil biology</i> when managing soil quality?	<b>1</b> <a href="http://sageguard.net">sageguard.net</a>





# Sustainability on your farm

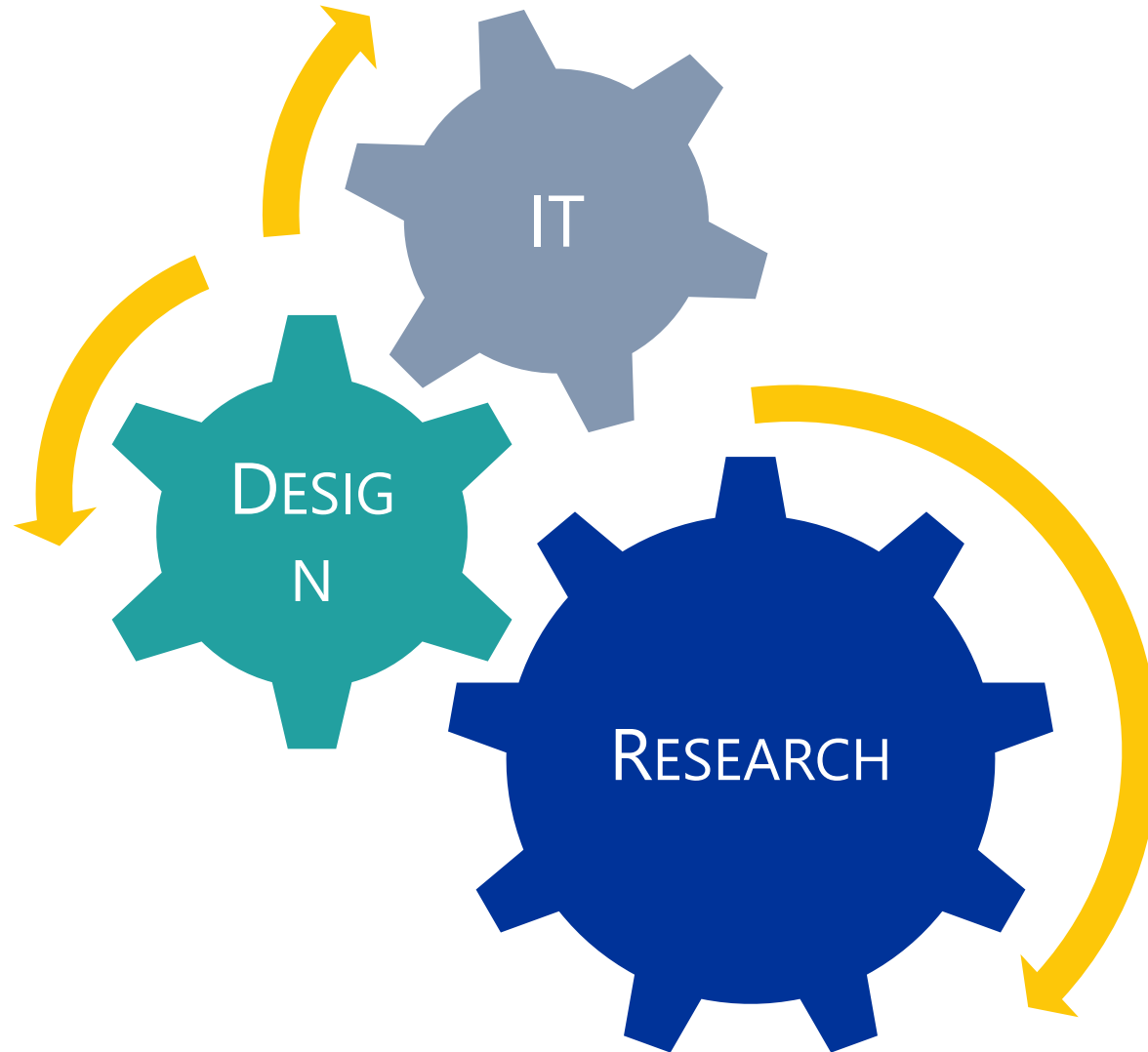
Each farm has a unique set of circumstances...







# Toolbox Team





# Design - iSAGE background

## What is a toolbox? What our toolbox should be?

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



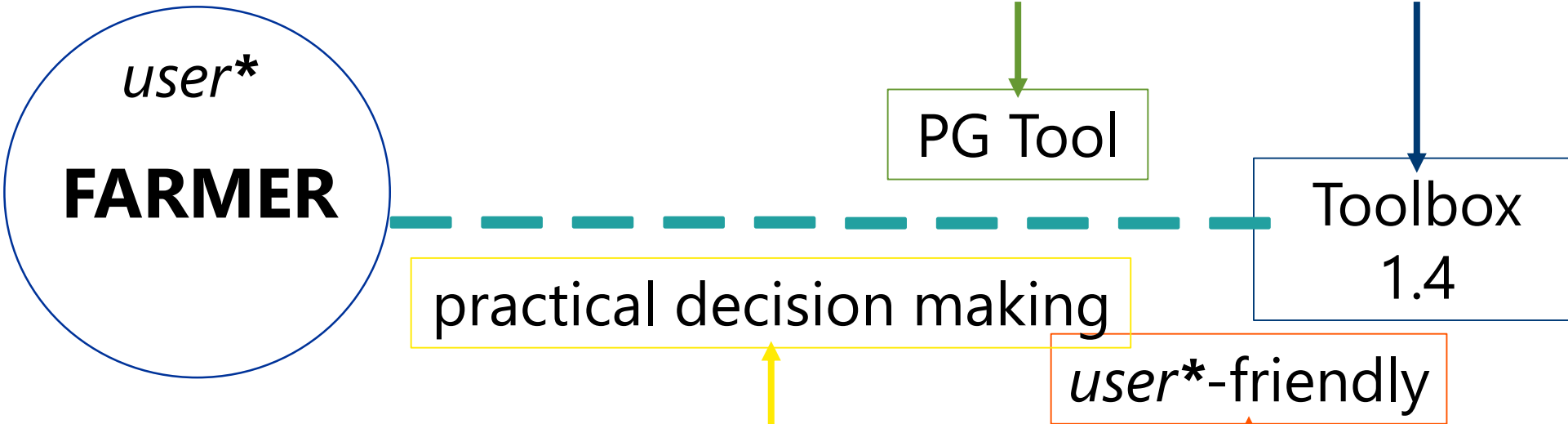
# Design - PG Tool background

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

- a huge(!) **Excel worksheet**
- 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**

# Design - shaping the idea

How to match content with container?



How to match function with functionality  
(=features)?



# Design - address the target

**How to match content with container?**



recommendations and advice

Toolbox  
1.4

practical decision making

*portability*

**CARDS**  
in a  
wheel

**How to match function with functionality  
(=features)?**





## 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

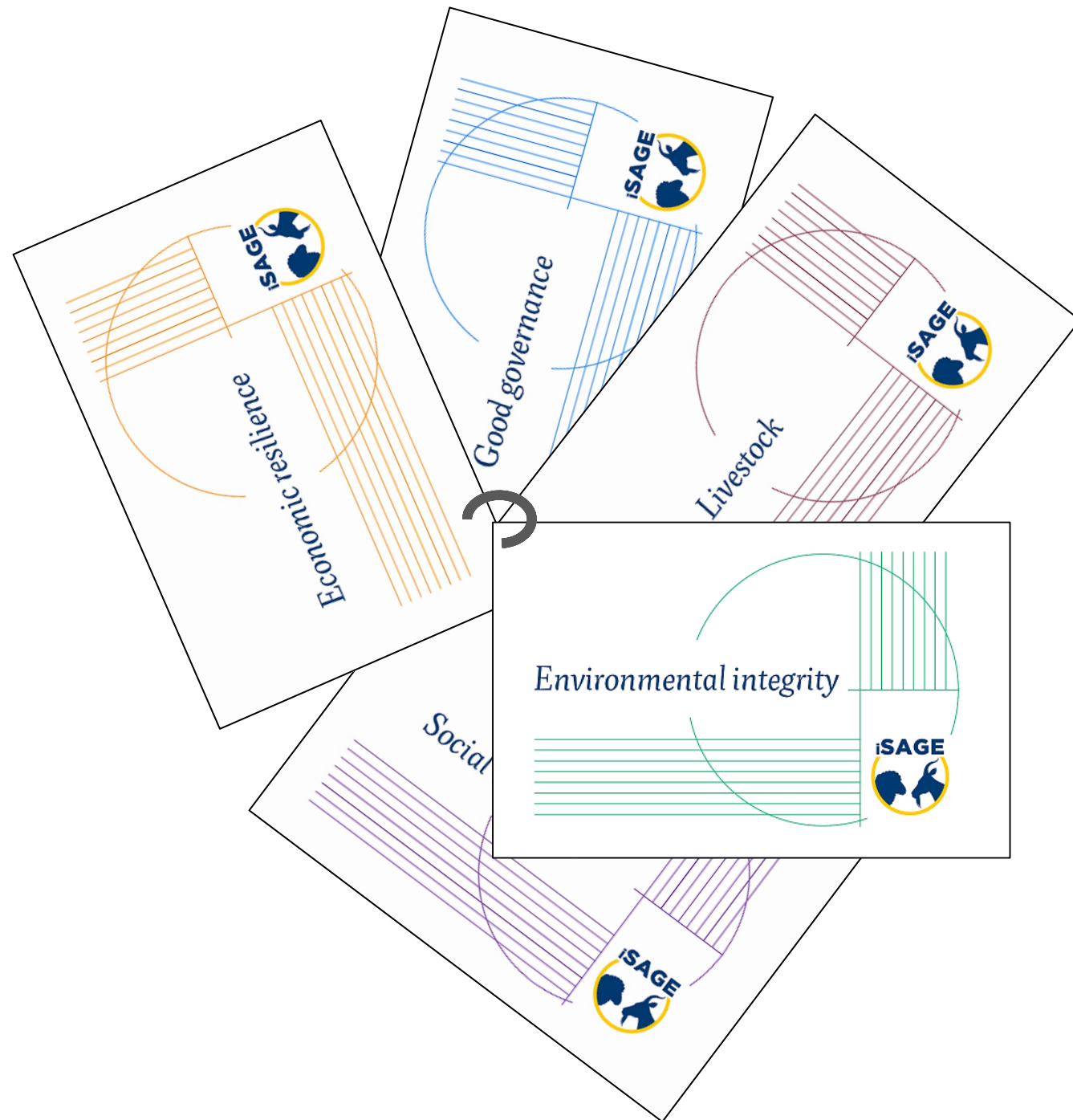


# Design first draft





# 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)



## Design - online adaptation

- The subtheme cards are now single **posts**, everyone within their **categories** (dimension and theme) and **tags** (keywords for search)
- The categories are also **pages** displayed 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 and the Cards have a weatherproof coating made to last



...Do you understand the name?

a starting point towards a sustainable system

**recommendations**

the moon / crop rotation

an ancient symbol

guidelines towards sustainability

SAFEGUARD



# Further information

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*Thank ewe!*

