Seminar of the FAO-CIHEAM Network on Sheep and Goats
Innovation for Sustainability in Sheep and Goats

**PESagri:**
A novel payments for ecosystem services framework for targeted agrienvironmental policy

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Ana Olaizola
**Introduction and objective**

*How to fairly reward the delivery of ecosystem services (ES) by farmers?*

<table>
<thead>
<tr>
<th>Different managements (agricultural practices) render farming systems with different potential to provide ES</th>
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</thead>
<tbody>
<tr>
<td>Permanently housed intensive livestock</td>
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<tr>
<td>Intensive dairy/beef/sheep</td>
</tr>
<tr>
<td>Extensive outdoor livestock and silvo-pastoral systems</td>
</tr>
<tr>
<td>Intensive arable</td>
</tr>
<tr>
<td>Extensive arable</td>
</tr>
<tr>
<td>Intensive mixed arable/pastoral</td>
</tr>
<tr>
<td>Extensive mixed arable/pastoral</td>
</tr>
<tr>
<td>Intensive permanent crops</td>
</tr>
<tr>
<td>Extensive permanent crops</td>
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<tr>
<td>Horticulture under glass</td>
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<tr>
<td>Horticulture field crops</td>
</tr>
<tr>
<td>Rice</td>
</tr>
<tr>
<td>Legumes, pulses, field vegetables</td>
</tr>
</tbody>
</table>

Number of practices with potential to provide *public goods*

0            10           20          30           40           50           60

**Objective:** to design and apply a generic framework of management-based payments for ES (PESagri) for sheep and sheep-crop farming systems

Cooper *et al.* (2009)
Material and methods:

• Starting point
  – 66 agricultural practices on relevant ES (EU report)
  – 10 monitored sheep and mixed sheep-crop farms in Aragón (SP)

• Delphi panel
  – Questionnaire:
    • Description of the diversity of Mediterranean agro-ecosystems
    • Positive contribution of 36 farming practices on ES:
      0: none, 1: very low – 5: very high; Don’t know

  – Experts on agriculture – environment (n = 61):
    • Researchers (n = 29)
    • Technicians/managers (n = 32)
Results

PESagri

- **FARM**: Adoption of beneficial agricultural practices (AP)
  - AP₁
  - AP₂
  - AP₃
  - ...

- **RESEARCH**: Contribution of agricultural practices to ecosystem services
  - % of contribution

- **SOCIETY**: Ecosystem services (ES) prioritization & valuation
  - ES₁
  - ES₂
  - ES₃
  - ...
  - %

- **POLICY**: Monitoring of beneficial agricultural practices
  - Budget allocation according to % of contribution
  - Budget: ****** €
PESagri

1. PESagri focuses on **agricultural activity as the main driver of many ES**, and reflect the **views of all stakeholders involved** (farmers, policy-makers, researchers, society).

2. It is able to **elucidate the contribution of real agricultural practices at the farms to the provision of diverse ES** and, potentially, **reward farmers** according to the ES they deliver.

3. It is **generic, customizable** according to particular agro-ecosystems and policy targets, and **easy to use**.

4. The **quantification of the multiple effects** of agricultural practices on one or several ES is central in the operation of the framework:
   - when a **particular ES** is the only target → promote particular practices that have a strong influence on this ES
   - when **several ES** are the target → promote multiple practices with synergic effects to deliver ES in bundles.
Thanks for your attention...

... and contribution to sustainability!

Tamara Rodríguez-Ortega, Alberto Bernués and Ana Olaizola
• Contribution of farming practices on a specific ES:

<table>
<thead>
<tr>
<th>Farming practices</th>
<th>Scores</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>1&lt;sup&gt;st&lt;/sup&gt;</td>
<td>Σ respondents' scores* → Σ respondents’ scores / Total score * 100</td>
<td></td>
</tr>
<tr>
<td>2&lt;sup&gt;nd&lt;/sup&gt;</td>
<td>&quot;</td>
<td>&quot;</td>
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<td>...</td>
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<td>&quot;</td>
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<tr>
<td>n&lt;sup&gt;th&lt;/sup&gt;</td>
<td>&quot;</td>
<td>&quot;</td>
</tr>
<tr>
<td>All</td>
<td>Total score</td>
<td>100 %</td>
</tr>
</tbody>
</table>

*Scores (Likert scale) with **ponderation** by self-appraisal on *expert knowledge*:  

\[
\begin{align*}
\times 0.2 & \text{ (very low)} \\
\times 0.4 & \text{ (low)} \\
\times 0.6 & \text{ (intermediate)} \\
\times 0.8 & \text{ (high)} \\
\times 1.0 & \text{ (very high knowledge)}
\end{align*}
\]