

### 3<sup>rd</sup> European Agroforestry Conference

## STAKEHOLDERS' VISIONS ON ENVIRONMENTAL AND ECONOMIC BENEFITS FROM DEHESA AGROFORESTRY SYSTEMS: A DELPHI APPROACH

Escribano, M.\*, Mesías, F.J., Horrillo, A., Elghannam, A., Gaspar, P.  
*Research Institute of Agricultural Resources (INURA). University of Extremadura.*

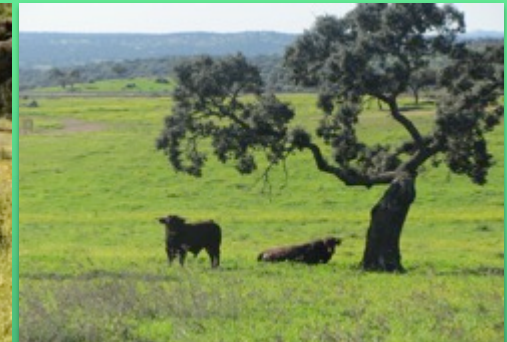
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# Purpose of the study

Analysis of the differences among stakeholders on the vision they have in relation to:

- Economic aspects
- Environmental benefits

Agroforestry  
Systems

Where

- Dehesa agroforestry systems
- Cow-calf farms

Why

- The ease of conversion

How

- Delphi method

Who

- Expert panel

When

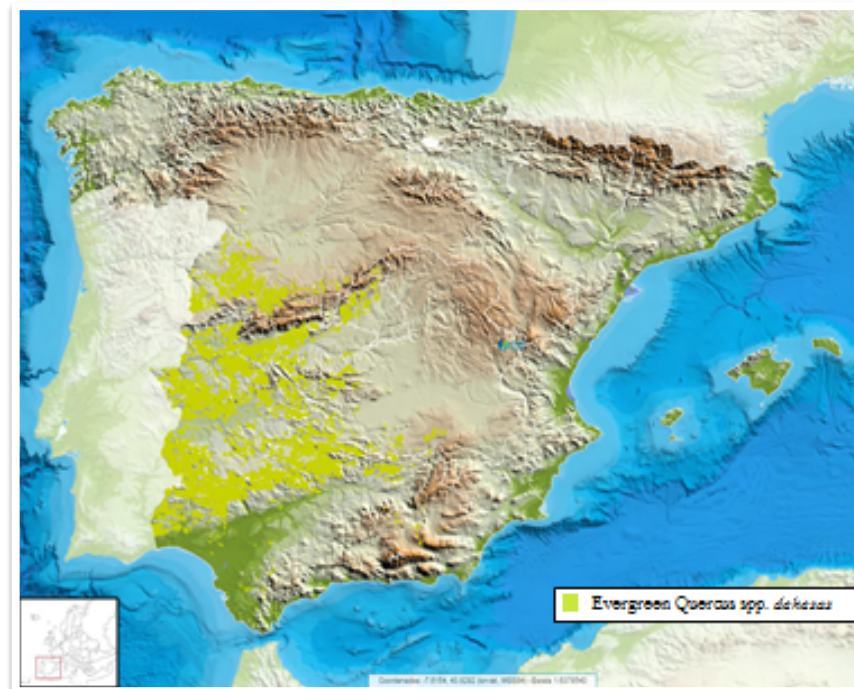
- First semester 2015



# Where?

## Dehesa Agroforestry system

- **Dehesas** (SW of Spain) are agroforestry and pastoral systems traditionally used by livestock.
- These systems stand out for their **high environmental and socio-economic value**, where livestock plays an essential role in their maintenance and conservation.
- In parallel, the **beef meat sector** in Spain represents 5.8% of Final Agricultural Production and 15.3% of the Final Livestock Production.
- The number of **organic beef cattle** farms located in Dehesa areas represent the **64%** of the organic cattle farms in Spain



# Where?

## Cow-calf farms

Key aspects	Conventional	Organic
Breed	a) Suckler cows of native breeds and their crossbreds	<ul style="list-style-type: none"> <li>Native breeds adapted to local diseases are recommended</li> </ul>
Diversity of farm animals	a) Generally more than one species grazing simultaneously (pigs, sheep and cattle)	<ul style="list-style-type: none"> <li>Organic and non-organic animals must be kept apart.</li> <li>Extensive systems allow other species or non-organic animals to be grazed when organic animals are not present in this pasture at the same time.</li> </ul>
Stocking rate	a) Very low. Between 0.3 and 0.5 Livestock Unit per ha.	a) The total stocking rate may not exceed the equivalent to 170 kg of nitrogen per ha of agricultural area ( 2.5 LU/ha).However, regional regulations lowered this limit in dehesa areas to a maximum of 0.5 LU/ha
Farming system	<p>a) Extensive, based on free grazing of animals. Constrained by climate and pasture production.</p> <p>b) Animals weaned with 6 months of age and 200kg in weight.</p> <p>c) Reproduction usually by natural breeding.</p>	<ul style="list-style-type: none"> <li>Extensive. With the limitations indicated by the EU regulation</li> <li>Minimum age for livestock weaning is 3 months</li> <li>Reproduction by natural breeding or artificial insemination. Hormonal treatments or artificial reproduction cannot be used</li> <li>All animals must be born and raised in the farm or must undergo a transition period.</li> </ul>
Facilities and buildings	a) Scarce and adapted to extensive farming	<ul style="list-style-type: none"> <li>Facilities and outdoor areas are regulated by EU organic regulation</li> </ul>
Feeding	<p>a) Feeding on grazing resources of the farm.</p> <p>b) In time of shortage supplemented with fodder and conventional feedstuff purchased out of the farm</p>	<ul style="list-style-type: none"> <li>Farming systems are based on maximum utilization of pastures</li> <li>At least 60% of the ration should be forages</li> <li>Off-farm raw materials used for animal feed must come from certified organic farms</li> </ul>
Sanitary treatments	<p>a) Almost nonexistent due to lack of disease</p> <p>b) Mainly preventive vaccinations and deworming</p>	<ul style="list-style-type: none"> <li>Preferably phytomedicinal and homeopathic treatments</li> <li>Treatments with synthetic drugs are limited to 3 per year</li> </ul>
Final product	a) Calves are mainly sold at weaning with 200 kg in weight and 6 months of age to intensive feedlots	<ul style="list-style-type: none"> <li>In those farms that complete the organic production cycle, the final product is the fattened calf with 500 kg in weight and 15 months of age. However, most organic farms sell their calves when they are 6 months old and through conventional market.</li> </ul>

# Why?

## Possibility of conversion

*In the recent past...*

- Changes in land use due to intensification and abandonment
- Increasing number of organic farms
- Growing demand of organic products



- Dehesas present **optimal conditions** for the development of **organic production** due to the ease of conversion of traditional extensive systems to the agro-ecological model.
- However the adaptation to these systems is not the same for all livestock species and farming systems. Likewise, its impact could not be considered in the same way by all the stakeholders.

# How?

## Delphi method

- Delphi method: qualitative forecasting technique
- It has been used as a way to generate **predictions in uncertain environments**, where one cannot resort to techniques that use objective data.
- Is traditionally based on the use of a representative panel of experts who **evaluate different issues** by means of a **questionnaire**.

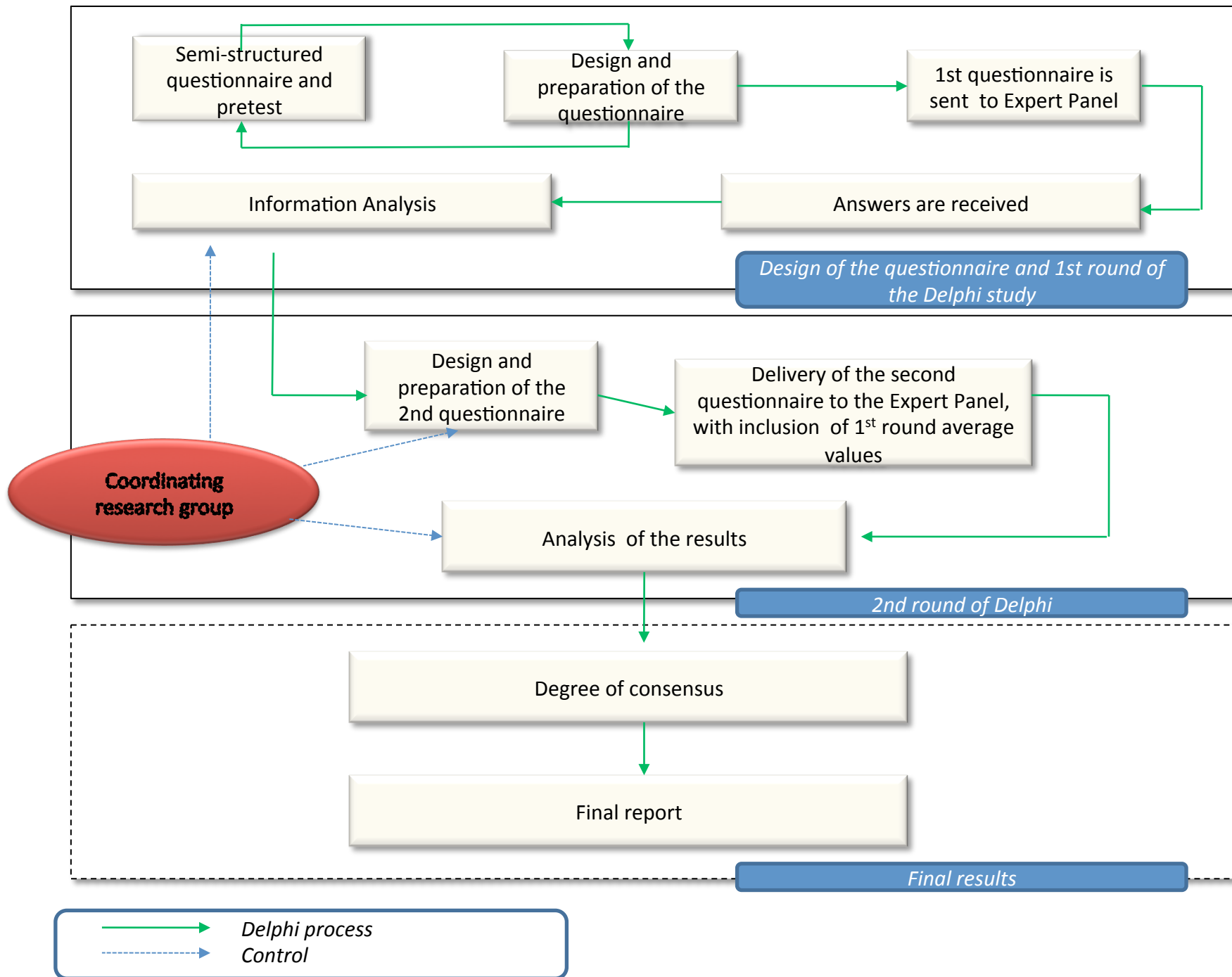
# How?

## Delphi method

- The **questionnaire** included 51 statements related to 6 blocks dealing with different issues.
- A 5-point Likert scale was used in all 51 questions in order to assess the degree of agreement or disagreement of the panelists.
- The **scale** used in our questionnaire was the following:

-2	-1	0	1	2
Strong disagreement or very unlikely occurrence	Disagreement or unlikely occurrence	Indifference	Agreement or likely occurrence	Strong agreement or very likely occurrence

- The purpose is to **reach a consensus** after several rounds answering the questionnaire





# Who?: Expert pannel

- The experts were **selected** from public Institutions, farming, research bodies, agricultural Organizations and companies in the sector.
- 47 selected experts where **contacted** in order to explain the objectives and principles of the research and obtain a commitment to participate.
- The final valid answers obtained were **39**, whose answers have been **grouped** together according to their affiliation:
  1. Government officials
  2. Livestock farmers
  3. Researchers
  4. Livestock associations

# Results

- Differences among Stakeholders in aspects related to:

## ***Benefits for the environment***

- 1. Improvement in Biodiversity and native breeds*
- 2. Preservation of trees and bush cover*
- 3. Soil improvement*
- 4. Better rationalization of use of pasture*
- 5. Improvement in agricultural practices*

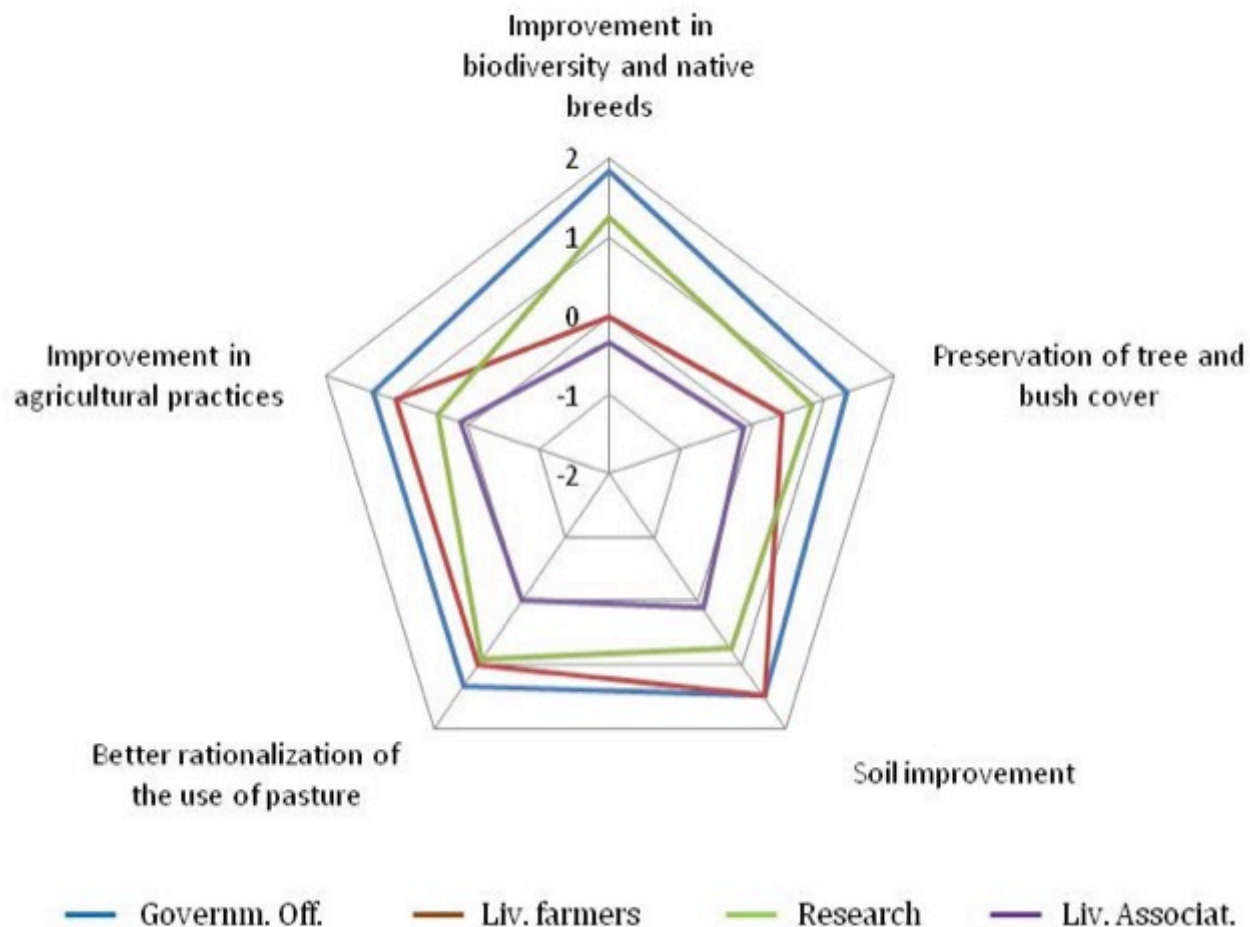
## ***Economic aspects***

***Stocking rates and native breeds***

***Income improvement and cooperativism***

# Results

## *Benefits for the environment*

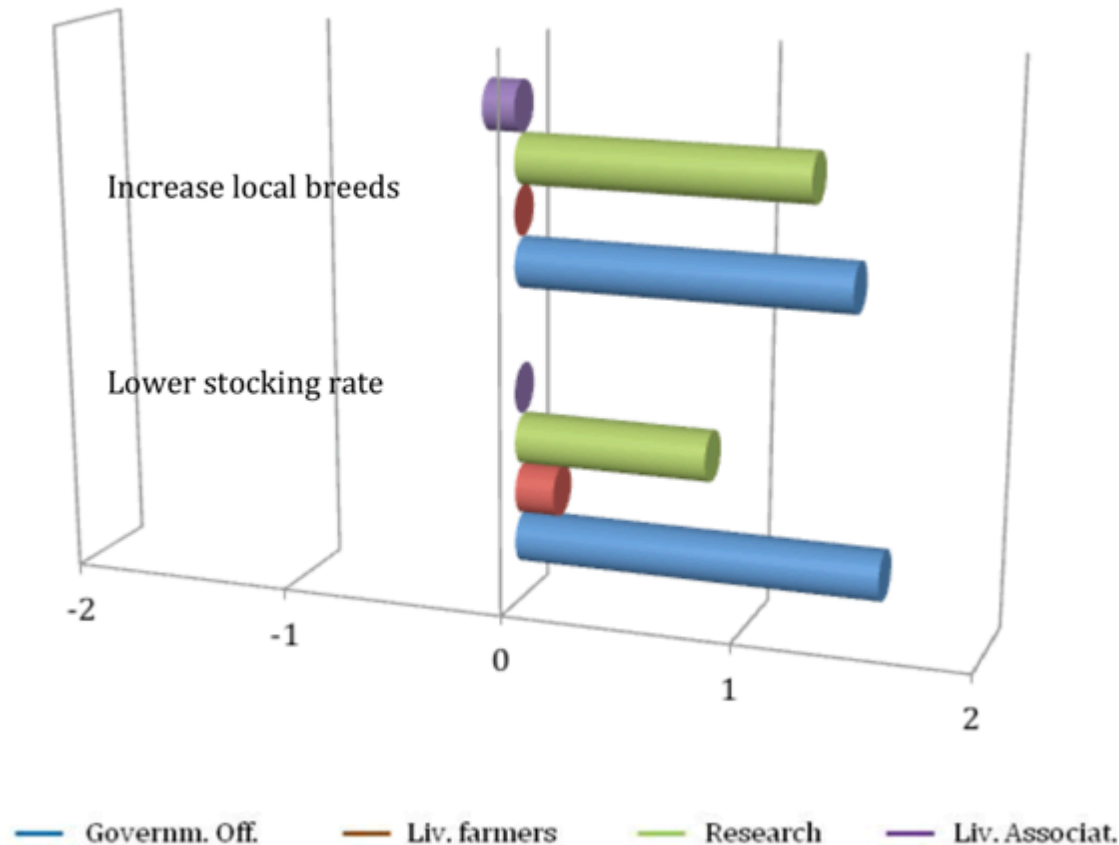


The Livestock Associations show the more critical view, disagreeing on the improvement of environmental aspects in pastures that the conversion to organic could bring.

Government officers strongly agree with 5 benefits

# Results

## *Stocking rates and native breeds*



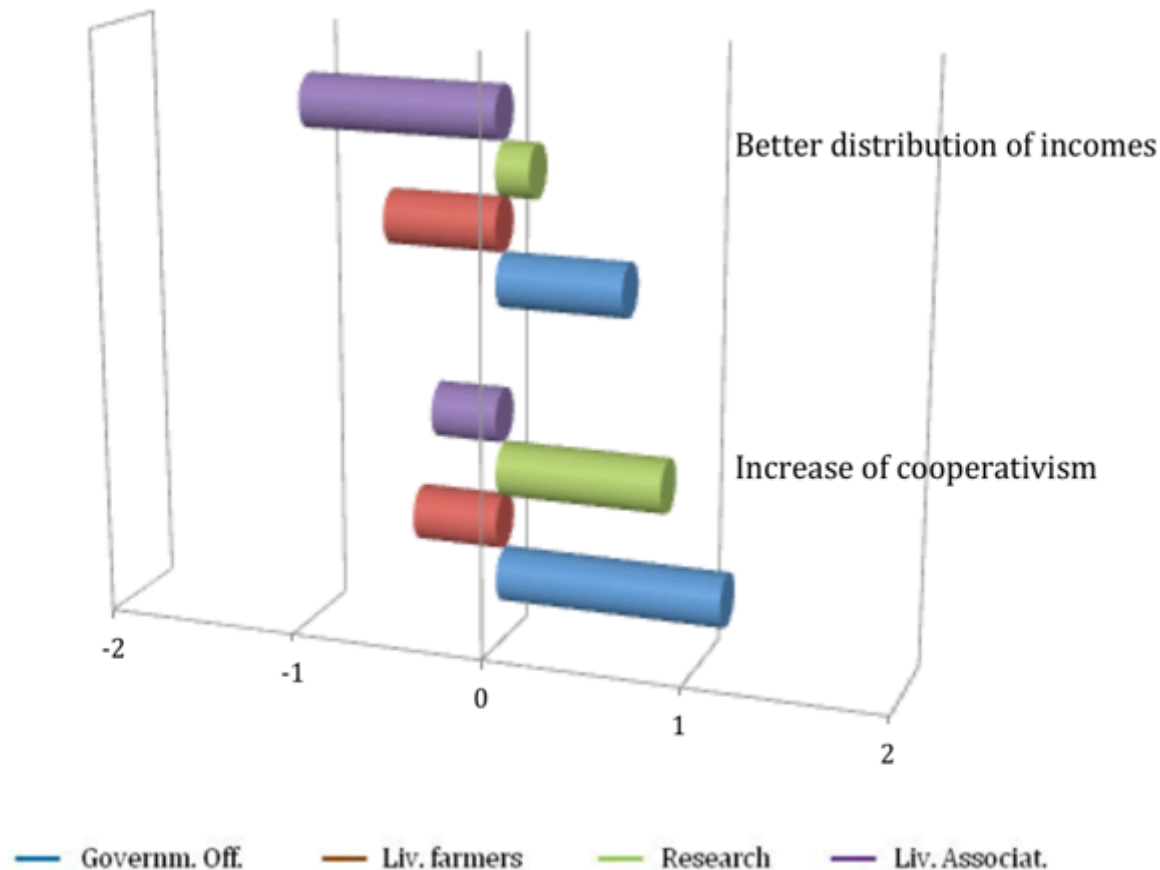
Experts have not agreed were on the effect that the conversion to organic could have on native breeds and on the stocking rates.

Although an increase of native cattle could be expected based on its better adaptation to the environment, this fact was not supported by all the stakeholders.

Regarding the evolution of stocking rates, were a reduction of its levels could come from the change to the organic model

# Results

## *Income improvement and cooperativism*



Associations and farmers are largely at odds with the statement that the introduction of the organic model in extensive beef cattle farms will improve farmers' income and will promote associationism.

These points of view are sharply in contrast with those expressed by participants from Government and Research centers.

# Conclusions

1. In this study, differences between stakeholders in relation to some **environmental and economic** aspects have been found.
2. Government officials and researchers are **optimistic** regarding the potential benefits for the environment of organic farming.
3. Livestock associations **doubt** whether there will be benefits from the conversion of agroforestry systems to the organic production model.
4. Experts from **Research** centers and **Public** administration believe that organic farms will promote an increase in the percentage of local breeds and a reduction of the stocking rates.
5. Farmers and their associations **disagree about the positive effect** that the organic production model could generate regarding the potential **improvement of incomes and the promotion of associationism**.



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### Is there a future for organic production in high ecological value ecosystems?



A. Horrillo<sup>a</sup>, M. Escribano<sup>a</sup>, F.J. Mesias<sup>b,\*</sup>, A. Elghannam<sup>c</sup>, P. Gaspar<sup>a</sup>

<sup>a</sup> Department of Animal Production and Food Science, Faculty of Veterinary Medicine, University of Extremadura, Avda. Universidad, s.n., Campus Universitario, 10003 Cáceres, Spain

<sup>b</sup> Department of Economics, Faculty of Agriculture, University of Extremadura, Avda. Adolfo Suarez, s/n, 06007 Badajoz, Spain

<sup>c</sup> Department of Agricultural Economics, Faculty of Agriculture, Damanhour University, Tor Sinaa Rd, Damanhour, Elbeheira, Egypt

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#### ABSTRACT

*Dehesas* (rangelands typically located in the Southwest of Spain) are agro-silvo-pastoral systems traditionally used in agriculture and livestock farming, where livestock uses large pasturelands in wooded regions. These systems stand out for their high environmental and socio-economic value, where livestock farming plays an essential role in their maintenance and conservation. The *dehesa* is located in the SW quadrant of the Iberian Peninsula, occupying a total area of 5.8 million hectares in Spain and 0.5 million hectares in Portugal.

Within this context, this paper analyses the potential these systems have to switch from the traditional model to organic production, in particular in the case of beef, as cows are the main livestock being reared in *dehesas*. For this purpose, we have used a Delphi analysis with a panel of experts in organic livestock production on *dehesas*. A total of 47 experts were selected from public institutions, farming, research bodies, agricultural organisations and companies in the industry.

After a two-round study, some of the most relevant aspects for the future of organic beef production in *dehesas* were analysed: the evolution of its productive system, the marketing of the produce and the positive or negative effects—either as a stimulus or a deterrent—that the EU Common Agricultural Policy its agri-environmental measures would have. The experts highlighted some relevant aspects that hinder the implementation and/or the transition from a traditional farm to an organic model, i.e. sales of the final product becoming stagnant, the lack of self-sufficiency in organic feed and the difficulty of access to organic certified slaughterhouses.

In this sense, the implementation of specific lines of subsidised funding that encourage the production of organic beef in *dehesas* would be desirable. These support schemes, together with marketing improvements and the increase of market prices, would guarantee the continuity of the holdings in this production segment.

It has also been agreed that the transition from traditional farms to organic production systems will result in a reduction in the use of non-renewable resources, thus decreasing stocking rates and finally increasing the environmental externalities of the *dehesas*, which would therefore enhance their conservation.

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[pgaspar@unex.es](mailto:pgaspar@unex.es)