

# Acorns for fattening free-range pigs

## Problem

Montanera is a traditional feeding system where pigs forage for acorns. Iberian pigs foraging for acorns during their finishing phase has economically contributed to conserving the “dehesa”, a high nature value (HNV) farmland based on agroforestry, currently consisting of more than four million hectares in the southwest of the Iberian Peninsula (photo 2).

## Solution

This natural resource is used to fatten pigs without any kind of compound or supplementary feed. During the last 2-3 months of fattening, pigs can gain more than 40 kg of body weight from grass and foraged acorns.

## Benefits

In the montanera system, the mean average daily gain for fattening pigs is  $\geq 0.75$  kg/day. Their body fat has a high concentration of oleic acid (around 55%) and very low concentrations of linoleic and palmitic acids; which is very important for the quality of pork and the cured products.

## Applicability box

### Theme

Pigs, feeding and ration planning

### Context

South West of Iberian Peninsula; partly adaptable to other Mediterranean areas and forests with *Quercus* species (the best species is *Q. ilex rotundifolia*).

### Application time

Autumn and winter.

### Required time

None if there are adult trees; approximately 15 years to have the first mast of acorns if it is necessary to establish trees and the surface is certified as organic.

### Period of impact

1.5 months to influence meat quality and fatty acid profile

### Equipment

None for free grazing; only a stick to knock down acorns if there is a swineherd with the pigs.

### Best in

Fattening pigs (especially in fatty breeds)

## Practical recommendation

- The fattening performance is very much influenced by the age of pigs and their compensatory growth; hence, pigs should be as old as possible ( $\geq 1$  year) and adapted to grazing.
- Grass is necessary as a source of protein to compensate for the low protein levels in acorns.
- The food conversion rate is 10.5 kg of whole acorns of *Q. i. rotundifolia* to gain 1 kg, besides the contribution of grass; to establish the stocking rate, consider that an adult evergreen oak produces  $\approx 11$  kg of acorns/year).
- Iberian pigs peel acorns to avoid the high content of tannins in the shell. However, during peeling, approximately 20% of the kernel can be wasted.

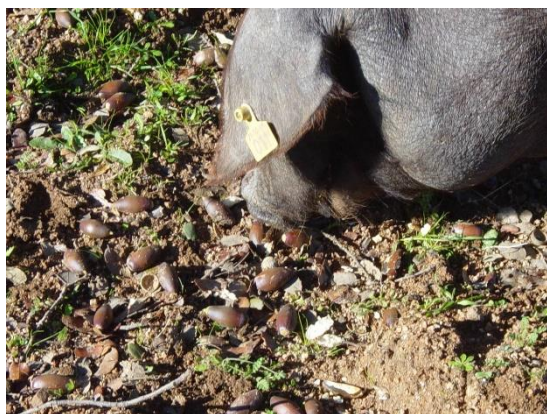


Photo 1: Pig foraging acorns (Vicente Rodríguez-Estévez, University of Córdoba)



Photo 2: Group of Iberian pig fatteners grazing in a dehesa estate (Vicente Rodríguez-Estévez, University of Córdoba)

## Further information

### Video

- The video [“Cerdos Comiendo Bellotas en la Dehesa”](#) shows a swineherd knocking down acorns.
- The video [“Cerdos ibéricos comiendo bellotas en una dehesa de Extremadura”](#) shows a herd of Iberian pigs foraging acorns.

### Further reading

López-Bote, Clemente J. (1998). Sustained utilization of the Iberian pig breed. In: *Meat Science*, Vol. 49, No. Suppl. I, 2018, pp. 17-27, [https://doi.org/10.1016/S0309-1740\(98\)90036-5](https://doi.org/10.1016/S0309-1740(98)90036-5)

Rodríguez-Estévez, Vicente et al. (2007). Producción de bellota en la dehesa: factores influyentes. In: *Archivos de Zootecnia*, Vol.56(R), 2007, pp. 25-43.

Rodríguez-Estévez, Vicente et al. (2008). Dimensiones y características nutritivas de las bellotas de los Quercus de la dehesa. In: *Archivos de Zootecnia*, Vol. 57(R), 2008, pp. 1-12.

Rodríguez-Estévez, Vicente et al. (2009). Intrinsic factors of acorns that influence the efficiency of their consumption by Iberian pigs. In: *Livestock Science*, Vol.122, 2009, pp. 281–285, <https://doi.org/10.1016/j.livsci.2008.09.011>

Rodríguez-Estévez, Vicente et al. (2010). Feed conversion rate and estimated energy balance of free grazing Iberian pigs. In: *Livestock Science*, Vol.132, 2010, pp. 152–156, <https://doi.org/10.1016/j.livsci.2010.05.019>

Rodríguez-Estévez, Vicente et al. (2012). Consumption of Acorns by Finishing Iberian Pigs and Their Function in the Conservation of the Dehesa Agroecosystem. In: *Agroforestry for Biodiversity and Ecosystem Services - Science and Practice*, Martin Leckson Kaonga, IntechOpen, DOI: 10.5772/34877. Available from: <https://www.intechopen.com/books/agroforestry-for-biodiversity-and-ecosystem-services-science-and-practice/consumption-of-acorns-by-finishing-iberian-pigs-and-their-function-in-the-conservation-of-the-dehesa>

### Weblinks

- Further documents can be found on the [Organic Farm Knowledge](#) website.

## About this practice abstract and OK-Net EcoFeed

### Publishers

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**Permalink:** [organic-farmknowledge.org/tool/37476](https://organic-farmknowledge.org/tool/37476)

**OK-Net EcoFeed:** This practice abstract was elaborated in the Organic Knowledge Network on Monogastric Animal Feed project. The project is running from January 2018 to December 2020. The overall aim of OK-Net EcoFeed is to help farmers, breeders and the organic feed processing industry in achieving the goal of 100% use of organic and regional feed for monogastrics.

**Project website:** [ok-net-ecofeed.eu](http://ok-net-ecofeed.eu)

**Project partners:** IFOAM EU Group (project coordinator), BE; Aarhus University (ICROFS), DK; Organic Research Centre (ORC), UK; Institut Technique de l'Agriculture Biologique (ITAB), FR; Research Institute of Organic Agriculture (FiBL), CH; Bioland, DE; Associazione Italiana per l'Agricoltura Biologica (AIAB), IT; Donau Soja DS, AT; Swedish University of Agricultural Sciences, SE; ECOVALIA, ES; Soil Association, UK.

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