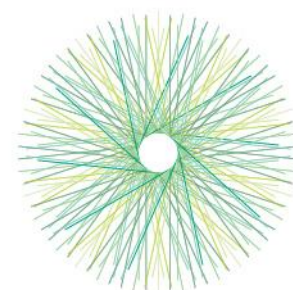


# Press article

## Grazing for carbon

SEPTEMBER 2018



eip-agri  
AGRICULTURE & INNOVATION

### Press article long article

#### Sown biodiverse pastures: a nature-based approach to reverse the degradation of Mediterranean ecosystems

##### Portuguese farmers provide answers to climate challenges

**For five years, 1000 Portuguese farmers sowed biodiverse seed mixtures, rich in legumes, across 50 000 hectares. This was part of the Terraprima project which tackled multiple challenges including climate change, biodiversity and soil degradation. This nature-based technique offers a potential sustainable intensification solution, simultaneously increasing production and environmental services. The sowing of these biodiverse seed mixtures resulted in a higher animal production and higher protein content of the animal feed. It also increased carbon sequestration through organic matter stored in the soil, improved soil fertility, increased water retention capacity of the soils and reduced the risk of erosion. What is more, the pastures helped maintain the diversity of plant species, birds and insects.**

The Terraprima project, funded by the Portuguese Carbon Fund, was implemented between 2009 and 2014 in the Southern Portugal 'Montado'. In this region, agro-forest ecosystems had been degraded by decades of harmful agricultural practices. Before the project, the area had less than 1% soil organic matter and a high susceptibility to soil erosion and desertification. By sowing the biodiverse pastures, the project aimed to turn this around. The farmers involved were provided with a clear implementation plan including technical support, field visits, e-mail and phone contact. Claudia Marques dos Santos, one of the many participating farmers emphasises: "No one knows the difficulties better than the farmer and can guide the search for solutions."

The Terraprima seed mixtures contain a high variety of improved and selected local plant species and varieties – up to twenty – which allows for a greater adaptability of the pasture to each specific area and type of soil and climate variability. Results show that the high proportion of legumes in the mixtures provides a renewable source of nitrogen for the food system and increases the productivity of the pastures. The higher protein content also makes the pastures more attractive to animals. At the same time, grazing avoids shrub invasion, thus reducing fire risk and the need for mechanical shrub removal. In fact Terraprima believes that, adapted implementation of sown biodiverse pastures in the whole Mediterranean region could provide many solutions to the biodiversity challenges Europe is facing. By reducing nitrogen leaching by not using nitrogen fertilisers, and phosphorus run-off due to reduced soil erosion, sown diverse pastures help to protect and restore clean water and ensure its long-term, sustainable use.

Other farmers have been experimenting with sown and natural biodiverse pastures. For example Manuel Die, livestock farmer with more than 18 years experience, stresses the importance of proper grazing management to maintain pasture biodiversity and production: "When the pastures are sown, it is necessary to manage them with high density, non-selective grazing and let the land rest in spring in order to establish a seed bank. In the dry season the dry matter has to be removed by grazing."

Claudia concludes: "We see ourselves not only as farmers but also as providers of environmental services. The main environmental advantages of sown biodiverse pastures are according to us: landscape improvement, nitrogen fixation, carbon sequestration, soil conservation and food for livestock."

## Press article short article

### Sown biodiverse pastures: a nature-based approach to reverse the degradation of Mediterranean ecosystems

#### Portuguese farmers provide answers to climate challenges

**For five years, 1000 Portuguese farmers sowed biodiverse seed mixtures, rich in legumes, across 50 000 hectares as part of the Terraprima project. This nature-based technique simultaneously increases production and environmental services. While these mixtures resulted in a higher animal production and higher protein content of the animal feed, it also increased carbon sequestration through soil organic matter, improved soil fertility, increased water retention capacity of the soils and reduced the risk of erosion. What is more, the pasture helped maintain the diversity of plant species, birds and insects.**

The project, financed by the Portuguese Carbon Fund was implemented between 2009 and 2014 in Southern Portugal's 'Montado'. In this region, agro-forest ecosystems had been degraded by decades of harmful agricultural practices. Soil organic matter was less than 1% and there were problems of soil erosion and desertification.

Results show that the high proportion of legumes in the mixtures provides a renewable source of nitrogen for the food system and increases the productivity of the pastures. The higher protein content makes the pastures more attractive to animals. Grazing avoids shrub invasion, thus reducing fire risk and reducing the need for mechanical shrub removal.

Other farmers have been experimenting with sown and natural biodiverse pastures. For example Manuel Die, livestock farmer with more than 18 years experience, stresses the importance of proper grazing management to maintain pasture biodiversity and production: "When the pastures are sown, it is necessary to manage them with high density non-selective grazing and let the land rest in spring to establish a seed bank. In the dry season the dry matter has to be removed by grazing."

## Background information

### Project information

Information on Terraprima: <http://www.terraprima.pt/en/sobre-nos/>

Watch the Terraprima project film explaining the benefits of sown biodiverse pastures: <https://www.youtube.com/watch?v=WR4tINbSXp4&feature=youtu.be>

### Contact information :

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## Pictures

Pictures below are free for use. Click on the picture to download the high resolution version



'Natural' Situation in 1990



'Sown' result in 2008

The high fraction of legumes in sown biodiverse pastures now provide a renewable source of nitrogen for the food system and increases the productivity of the pastures. - Copyright: Terraprima team

The implementation of sown biodiverse pastures reversed the degradation of the Montado region in Southern Portugal - Copyright: Terraprima team

## More information on increasing soil carbon content in grazing systems

The [EIP-AGRI Focus Group 'Grazing for Carbon'](#) has published its Focus Group report and minipapers September 2018:

- [EIP-AGRI Focus Group report 'Grazing for Carbon'](#)
- [EIP-AGRI Focus Group factsheet 'Grazing for Carbon'](#)

### More related EIP-AGRI carbon sequestration and grazing topics

- [EIP-AGRI Focus Group Profitability of Permanent Grassland](#)
- [EIP-AGRI Focus Group 'Carbon storage in arable farming'](#)
- [EIP-AGRI Focus Group 'Soil organic matter in Mediterranean regions'](#)
- [EIP-AGRI Focus Group 'Robust and resilient dairy production systems'](#)
- [EIP-AGRI brochure 'Soil organic matter matters'](#)

## Horizon 2020 Thematic Network on carbon sequestration and grasslands

- Inno4Grass<sup>(MAA)</sup> - Shared Innovation Space for Sustainable Productivity of Grasslands in Europe: [website](#) - [CORDIS](#) (2016)

Thematic networks are multi-actor projects which collect existing knowledge and best practices on a given theme to make it available in easily understandable formats for end-users such as farmers, foresters, advisers etc. More information on [www.eip-agri.eu](http://www.eip-agri.eu)

## EIP-AGRI Inspiration from your country on increasing soil carbon content from grazing systems

Here below you find a list of topics that have been covered in one of the EIP-AGRI events and / or EIP-AGRI publications.

|                        |  |   |
|------------------------|--|---|
| France                 | Cutting atmospheric carbon: a central role for soils   | <a href="#">Agrinnovation magazine n°4 – p.19</a>                   |
| Germany, Italy, Sweden | Climate-friendly practices   | <a href="#">Inspirational idea</a>                                  |
| Portugal               | A passion for permanent pasture  | <a href="#">Inspirational idea</a>                                  |
| Sweden                 | Swedish organic farm leads the way in fighting climate change  | <a href="#">Press article</a>                                       |
| UK                     | Increasing farm profitability while cutting carbon emissions, a toolkit developed by farmers for farmers | <a href="#">Inspirational idea</a><br><a href="#">Press article</a> |

## Operational Groups on grazing systems in your country?

At the beginning of September 2018, the [EIP-AGRI Operational Groups database](#) on the EIP-AGRI website included 8 Operational Groups in the EU working on grazing:

- Germany: 1
- Ireland: 5
- Spain: 1
- UK: 1

## EIP-AGRI

The European Innovation Partnership 'Agricultural Productivity and Sustainability' (EIP-AGRI) is one of five EIPs which have been launched by the European Commission in a bid to promote rapid modernisation of the sectors concerned, by stepping up innovation efforts.

The EIP-AGRI aims to foster innovation in the agricultural and forestry sectors by bringing research and practice closer together – in research and innovation projects as well as via the EIP-AGRI network.

EIPs aim to streamline, simplify and better coordinate existing instruments and initiatives, and complement them with actions where necessary. Two specific funding sources are particularly important for the EIP-AGRI: the EU Research and Innovation framework, Horizon 2020, as well as the EU Rural Development Policy.

- [EIP-AGRI Brochure on the EIP-AGRI Network \(2015\)](#) (EN – BG – FR – GR – HU – IT – PT – RO - SP)
- [EIP-AGRI Brochure on Thematic Networks under Horizon 2020](#) (EN – BG – FR – HU – SP)
- [EIP-AGRI Brochure Horizon 2020 multi-actor projects](#) (EN – BG)
- [EIP-AGRI Brochure on Funding opportunities under Horizon 2020 - 2019 Calls](#) (EN)

## EIP-AGRI Operational Groups

EIP-AGRI Operational Groups are groups of people who work together in an innovation project funded by Rural Development Programmes (RDPS). Operational Groups are the EIP-AGRI's main tool for turning innovative ideas into real solutions for the field.

An Operational Group consists of several partners with a common interest in a specific, practical innovation project. The people involved in the Operational Group should bring in different types of practical and, where necessary, scientific expertise. They may include farmers, scientists, agri-business representatives and many others. Every country or region has the possibility to define specific national demands or restrictions on how to put together an Operational Group.

- Visit the [Operational Groups page](#) on the [EIP-AGRI website](#)
- [EIP-AGRI Brochure on Operational Groups: Turning your idea into innovation \(update 2016\)](#)  
(DE - EL - EN - CZ - FR - HU - PT - RO - SK - SP)
- [EIP-AGRI Brochure Operational Groups - Collaborate to innovate](#) shows examples of successful collaborations in Portugal, France, Estonia, Finland, Germany and the Netherlands. It provides Operational Groups with inspiration and tools for further knowledge exchange within the EIP-AGRI network.

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