RURAL INSPIRATION AWARDS **NOMINEE**

European Network for Rural Development

EAFRD-funded projects

CZECH REPUBLIC

Climate change adaptation

Location
Šardice

Programming period
2014 – 2020

Priority
P4 – Ecosystems management

Measure
M10 – Agri-environment – climate

Funding (EUR)
Total budget 56 311
EAFRD 31 100*
National/Regional 10 300*
Private: 3 100
Other: 11 811

Project duration
2015 - 2020

Project promoter
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* 2019 funding

An eco-farm implementing agri-environment-climate measures aims to foster ecosystem services and climate adaptation on-farm as well as promote wider uptake throughout the farming community.

Summary

This project is about the protection of soil, water, landscape and biodiversity through the implementation of appropriate measures in an organic farming system. These are:

- Establishing grass buffer zones on the land most at risk of water erosion.
- Setting up a network of feed bio-belts to support farmland birds and wildlife.

Adaptation measures established on previous used arable land - wetland, observatory, extensive orchard with non-mowed part of meadow for support of biodiversity – spring 2020

- Implementing measures on arable land with the aim to protect northern lapwing and wetland ecosystem habitats bordering the fields.
- Planting grassy areas with typical regional varieties of fruit trees.

The sustainable farming and regenerative process developed on this eco-farm enables the restoration of soil fertility, soil organic matter and biodiversity of wild fauna and flora. It also reduces the risk of soil erosion from wind, rain and snow and improves the soil infiltration and water retention. Altogether, the measures undertaken provide essential adaptation capacity against the increasing intensity and frequency of flooding and droughts due to climate change. Finally, the farm provides a demonstration platform for training and the presentation of good practices as well as accredited agricultural advisory services about these measures.

Results

Under the project, the eco-farm is applying the agri-environment-climate measures deemed necessary, suitable and functional to regenerate the ecosystem services absent on its farmland. Diverse environmental benefits to wildlife, habitat, biodiversity and water quality have resulted from such actions, and soil quality improvements such as organic matter increase and structure allow for adaptation to climate-induced extreme rainfall and droughts. Capacity building and training for farmers has been provided through the demonstration of the farm's best practices and results.

Lessons and recommendations:

❑ Implementation of agri-environment-climate measures may be brought about through on-farm demonstration, providing the opportunity to observe the various methods and their positive impacts on soil, water, landscape and wildlife.

❑ Education and training opportunities for farmers interested in learning more about the associated challenges and benefits of implementing agri-environment-climate measures offer the potential for significant change in farming systems.

Funded by the European Commission

Context

The project was implemented in an agroecosystem that had been significantly damaged over the years by intensive farming. The eco-farm is located near the village of Šardice in the South Moravia region of the Czech Republic. Soil fertility was low both in the farm's fields and in the surrounding area and soils were at a significant risk of erosion. Furthermore, a decline in the biodiversity of farmland birds and wildlife had been observed and the impact of climate change was increasingly felt through drought and torrential rain. The CAP and the EAFRD offered interesting funding measures to tackle these problems.

Traditional, intensive farming applies cropping practices that tend to be market-driven and often result in negative environmental impacts. Since traditional farmers showed no interest in agri-environmental, greening and other adaptation measures, the eco-farm's owner/operator decided to set up a family farm where these measures would be implemented. In addition, the farm would also provide the opportunity for interested farmers to learn about the setup, implementation and benefits of functional exemplary measures to adapt to climate change. An educational facility was built to support vocational education and awareness raising activities.

This stemmed from the fact that farmers did not have a suitable demonstration farm where good practices could be presented and compared with other methods. Advisory services and knowledge transfer were only available through agricultural machinery dealers and companies selling agrochemicals. Education and nature protection advisory service activities were not available at all. Thus, the eco-farm's owner/operator, as both a farmer and an advisor, received accreditation by the Ministry of Agriculture in the sub-areas "Agriculture and Nature and Landscape Protection" and "Land Care". In addition to providing advisory services, this enabled him to provide professional training on CAP requirements through his NGO.

Objectives

As a result of implementing agri-environment-climate measures, such as halting the decline of biodiversity, minimising the risk of erosion, and improving the soil's water retention, the farmed landscape should become greener and more ecologically stable. To minimise the effects of climate change and promote landscape adaptation, the project aimed to:

- Establish a farm where these agri-environment-climate measures could be effectively put into practice to demonstrate their positive impacts.

- Present and disseminate good practice in the affected region to other farmers.

- Develop and help shape agriculture's contribution to climate adaptation by the rural areas in the region.

Activities

Between 2007 and 2013, the eco-farm's owner/operator used start-up funds for young farmers to buy land and agricultural equipment and to implement the farm's first agri-environmental measures. He afforested hard-to-manage land and built wetland ecosystems and bio-corridors (under the "Ecofarm Petr Marada"). Subsequently, he established an NGO (Pro přírodu a myslivost), which offered vocational training. Combining his own capital and support obtained from the EAFRD, he built an "Ecocentre for information and advisory services" in 2012.

In the period 2014-2020, the following agri-environment-climate measures have been implemented on the eco-farm:

- Bio-belts – they support wildlife populations with a focus on farmland birds; increase soil fertility on arable land, water retention, permeability and reduce the risks of erosion; support wild plants; increase biodiversity; and enhance the attractiveness of agricultural landscapes. Unlike a bio-corridor, a bio-belt is an agri-environmental measure for arable land incorporating a special mixture of plants. It is an ecological focus area on productive land and not a landscape element. Bio-corridors include trees and bushes and are considered a landscape element.

- Protection of the northern lapwing – measures were carried out to provide a suitable habitat for the northern lapwing and other waders. These measures also aimed at further increasing the biodiversity of other farmland birds, providing space for pollinators and crop pest predators, increasing soil fertility and restoring soil organic matter.

- Planting grass on arable land and concentrated buffer zones – the purpose of this is to restore the landscape's water cycle, reduce soil erosion, increase biodiversity, restore soil structure, permeability and organic matter.

Agri-environment business focused on
adaptation to climate change
(Ekofarma Petra Marady)

- Organic farming – all land on the eco-farm is farmed organically with the support of RDP measure 11. No pesticides or synthetic fertilisers are applied. Instead, only biological methods for integrated pest management and plant protection are used. On selected areas of the fields, for example, a special fodder mixture is grown to support pollinators, natural predators of pests and wildlife. On significant parts of the eco-farm, extensive orchards have also been established and cultivated.

Following the uptake of these agricultural management measures, key environmental indicators are monitored, and the measures are fine-tuned if necessary to provide high-quality ecosystem services.

Training and information activities as well as advisory services have been provided on all of these activities. Drawing on additional funding sources, the eco-farm built a multifunctional observatory for agricultural management and related education, a complex for training and first-hand experience. For example, a large observational beehive is housed in the observatory. The Ministry of Agriculture of the Czech Republic (MoA) awarded the eco-farm the status of 'demonstration farm'.

Cooperation is an important element of the project. Landowners and tenants, farmers, gamekeepers, state and local governments and Local Action Groups (both national and international) have interacted with the eco-farm through visits, events, trainings, and so on. The eco-farm has also cooperated with universities (the Mendel University in Brno, the Czech University of Life Sciences Prague), research institutes (the Forestry and Game Management Research Institute, the Research Institute for Soil and Water Conservation), government (MoA, The Ministry of the Environment) and non-governmental organisations (the Czech-Moravian Hunting Union, the Czech Society for Ornithology and the Czech Society for Private Agriculture).

Main results

As a result of the project, bio-belts are now established on 6 hectares of arable land to stop the decline in plant and animal biodiversity. Populations of wild partridge, common pheasant and hare – indicator species of the health status of the landscape – were restored. A further 28 hectares of extensive organically managed orchards were established. This has helped to restore the soil structure and landscape diversity as well as generate predators of crop pests. The special forage mix grown ecologically on 14 hectares of arable land has improved

soil fertility and water management. Difficult to manage farmland (6 ha) was forested, resulting in enhanced carbon sequestration as well as prevention against soil erosion. Additionally, measures for water retention in the landscape – wetlands and pools – were built on 3 ha of previously arable land. These measures provide for better adaptation to climate change throughout the farm's landscape by maintaining soil cover and establishing perennials to reduce soil disturbance and improve structure so that water permeability is improved as well as retention. These features are critical, in light of the probable increases in extreme rainfall events due to climate change, to allow for drainage and prevent waterlogging as well as water erosion. Retention helps to reduce the severe impacts caused by droughts.

System of adaptation measures created after the Complex land consolidation: extensive orchard, wetland, observatory, anti-erosion balks, bio-belts, bio-corridor, grassy valleys raised on previously arable land – spring 2020

These modifications to the farming landscape have also resulted in green infrastructure for outdoor recreation, and the facility Eco-centrum provides a space for indoor vocational education, information and advisory services. As a result of this project, there have been hundreds of individuals trained and educated at the eco-farm on various agri-environment-climate measures that can improve the sustainability of farming operations in rural areas. Many have set up farms and are now successfully, sustainably farming and developing their rural areas (Zdeněk Sečka's organic farm in Moravský Písek, Marek Daňhel's organic farm in Albrechtice near Český Těšín, etc.). The farmers who have participated in the education and training offered by the eco-farm have included both existing and new entrant farmers. This means its scope of influence extends not just to those setting up their farming systems but is helping to foster sustainable change in existing systems.

Key lessons

The project is the result of cooperation amongst various stakeholders: farmland owners and tenants, gamekeepers, farmers, professional organisations and associations, universities and research institutes. Cooperation with LAGs, which participate in education, advising and also financing of projects, was important as well from the perspective of contributing to the development of rural areas through sustainable, climate adaptative approaches to farmland management. Establishing the demonstration farm was crucial in providing a platform for other farmers to gain insights into what the agri-environment-climate measures look like in practice and how they might be implemented on their farms. The National Rural Network was able to organise numerous field visits to this site, including for foreign visitors to promote a wider uptake. Thus, an important benefit of the activities carried out is that the requirements of the RDP measures have been and can be presented to a wide range of stakeholders, something which was not possible in the past.

Other EU funds may be used in conjunction to promote the implementation of agri-environment-climate measures on-farm, such as the Operational Programme Environment 2014-2020, which financed the wetlands, pools, bio-belts, the planting of regional varieties of fruit trees, and green infrastructure measures. Finally, the EU-level Common Agricultural Policy (CAP) and national-level objectives for protection of the environment (the Czech Nature and Landscape Policy), as well as climate mitigation and adaptation commitments, may be simultaneously achieved through farming systems which minimise negative environmental impacts whilst continuing to produce food and manage the landscape.

Detail of wetland after rainstorm - summer 2012

Additional sources of information

n/a