



COUNTRY

Czech Republic

PROJECT PROMOTER

Zemelenska akciová společnost
Mezihaji, a.s.

FUNDING

2014-2020 RDP funds, EUR 187 000
Other national funds, EUR 191 000
Private funds, EUR 387 000

RDP MEASURE

M16 - Cooperation

DURATION

2017 – 2020

CONTRIBUTION TO

- generating environmental benefits
- mitigating climate change
- increasing efficiency of biomass resource use
- creating value through improved production methods or processing technology
- creating value through increased cooperation among value chain actors
- replicating an existing approach from another area/country

KEYWORDS

Added value, agriculture, bio-based waste, cooperation, innovation, soil management

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Innovation to improve soil quality in ZAS Mezihájí

The initiative

A farm producing livestock and arable crops set up a cooperation project with a research company in order to improve its soil conditions and thus its long term economic sustainability. The farm was affected by unbalanced hydrological conditions, soil erosion and a lack of organic matter.

The research company's activities within the project include analysing the current conditions of the farm (such as the health status of the cattle); proposing specifications for new machinery (for soil preparation, sowing and harvesting); analysing soil samples and harvested material; selecting a suitable type of activator for the biological transformation of organic matter; introducing an innovative procedure for manure processing and storage; evaluating the qualitative and quantitative parameters of the manure produced, etc.

RESULTS

- ✓ The payback period of the whole project is calculated at 6.3 years;
- ✓ Expected revenue / cost savings:
 - technology to incorporate organic matter on about 500-550 hectares (corn, cereals);
 - technology to prevent soil degradation and reduce soil stiffness, protect the vegetation and reduce the use of chemical protective substances on an area of approx. 1000 ha;
 - technology to harvest maize for silage and other crops for cattle feeding for increased milk yield.
- ✓ Total annual revenue growth / cost savings of CZK 1 500 000 (approx. 59 000 EUR).
- ✓ 10 individuals directly employed in/by the initiative, and 20 indirectly (e.g. in spin-offs of the initiative, suppliers, transport, etc.)



Context

The project concerns a farmer managing 1 126 hectares of agricultural land with heavy soil in an area prone to drought. The farmer breeds dairy cattle (380 cows) and pigs (2300), and also grows sugar beet (139 ha), cereals (550 ha), rape (126 ha), maize (86 ha) and feed crops (128 ha). The project was needed in order to address the challenging hydrological conditions; to mitigate soil erosion; and to find a solution to the lack of soil organic matter on the farm.

Objective

The overall objective of this project was to reduce the consumption of chemical fertilizers on the farm by improving the management of manure. To this purpose, the project aimed to develop a fast and efficient process for incorporating plant residues, manure and organic fertilizers into the soil.

Activities

The Agrovýzkum Rapotín sro company is the research partner in this project. It was founded in 2004, as a subsidiary of the Research Institute of Cattle Breeding. The company carries out research and development activities aimed at solving production problems in agriculture.

Activities carried out by the research partner:

- An analysis of the state of the farm business, including an evaluation of the agro-technology currently in use and an assessment of the health status of the young cattle (reproduction indicators, number of zootechnical and veterinary interventions, etc.) in order to propose improvement measures and new technologies;

- Making recommendations for new equipment or practices that can maximise the farm's operational efficiency (i.e. the purchase of new machinery for preparing the soil, incorporating manure and facilitating sowing and harvesting);
- Conducting analyses of soil and harvest samples. Evaluating crop cultivation technology and the efficiency of the purchased machinery;
- Re-assessing the health status of cattle following the introduction of the new measures;
- Selecting a suitable type of activator for the biological transformation of organic matter and introducing an innovative process for manure processing and storage;
- Evaluating the nutritional value of the canned fodder that is produced with the new technology and included into the mixed feed, as well as evaluating its impact on the dairy yield.
- Evaluating the environmental conditions in the stable - including ammonia emissions - and evaluating the qualitative and quantitative parameters of the manure produced.

Environmental sustainability

The work will allow the farm to improve the hydrological conditions of soil; to mitigate soil erosion; and to increase the organic matter in the soil.

A final report will be produced based on the results of the chemical and physical analyses of the soil, feed and manure. The report will include a comparative economical analysis of the state of the farm prior to and following the implementation of the new measures.