

## POLAND

### Farm's performance, restructuring & modernisation

**Location**  
Sosnówka

**Programming period**  
2014 – 2020

**Priority**  
P2 – Competitiveness

**Measure**  
M16 - Cooperation

**Funding (EUR)**  
Total budget 233 185  
EAFRD 110 370  
National/Regional 63 086  
Private 59 729

**Project duration**  
2018 – 2021

**Project promoter\***  
EIP Operational Group

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**Website**  
[www.lubelskieziola.pl](http://www.lubelskieziola.pl)

An EIP Operational Group developed and tested a unique end-to-end agroforestry production process that is sustainable, profitable for the farm and the processing company, and which benefits consumers through products made in a way that supports the environment.

## Summary

This EIP (European Innovation Partnership) Operational Group focused on the concept of a comprehensive model of agri-food production management 'from farm to fork', using innovative cultivation technologies and process management tools for introducing plants to cultivation according to new cultivation technology.

Breakthrough technologies based on agroforestry systems were developed and tested. This enabled a significant improvement in the condition of soil and water, increasing biodiversity and adapting to climate change, while increasing the profitability of agricultural and food production. The introduction of wild-growing herb species, including endangered ones, has resulted in the development of health-promoting products in the form of teas and spices.



## Results

Six new cultivation technologies for agroforestry systems were developed and tested on the farm. For the first time in the world, five wild-growing species were introduced to cultivation: cloudberry, forest speedway, turnip, vegetable thistle and lungwort. This contributed to the preservation of biodiversity, including the protection of endangered species in their natural habitats.

According to research, the profitability of agricultural production using the 'avenue agroforest system' is at least 60 % higher than by monoculture.

A programme application for managing production 'From farm to fork, innovative solutions for the agri-food sector' has been developed in cooperation with AgriSolutions, an IT developer. The FarmCloud platform - [www.farmcloud.eu](http://www.farmcloud.eu) is available to farmers free of charge.

The model is distributed in Poland and abroad. It was presented, among others at the 4th World Congress of Agro-forestry in Montpellier, France in 2019 and at a February 2020 conference in Poland, organised by the European Commission. This model of sustainable production 'from farm to fork' with its new technologies has been implemented in 20 farms in Poland and can also be transferred to farms in the EU.

## Project partners

**Research institutes:** Warsaw University of Life Sciences and the Institute of Soil Science and Plant Cultivation in Puławy

**NGO:** The Foundation for Lubelskie Development – Leader

**Enterprise:** ECO – FARM Sosnówka Ltd.

**Farmer:** Agricultural Farm Barbara Baj Wójtowicz

\* The Project promoter/beneficiary is an EIP-AGRI Operational Group (<https://ec.europa.eu/eip/agriculture/en>)

## Context

Many herbal species necessary for the food, pharmaceutical and cosmetic industries are still obtained from nature. The drive to obtain herbal raw materials for industry puts increased pressure on natural habitats, which are often destroyed during harvesting. These practices are threatening many valuable species and have led to a decline in biodiversity. It is thus urgent to develop technologies for growing wild species, including endangered varieties, and for obtaining raw materials from crops.

Agriculture and the agricultural processing sector generate significant amounts of greenhouse gases, contributing to increasing temperatures and deteriorating living conditions. Consumers are becoming more environmentally aware, they are looking for products with added value, and one of the essential purchasing conditions is a method of sustainable production throughout the 'farm to fork' cycle. Blockchain tools are necessary that will allow the consumer to obtain information about its environmental footprint from field to shelf in the store, based on a product's QR (Quick Response) code. The implementation of such a solution will enhance the producers' competitive advantage and increase the profitability of farms. Such solutions will enable the positioning of food products centred on marketing based on pro-environmental values.

Agri-food production in agroforestry systems can address these issues. It is therefore essential to develop and implement a sustainable, end-to-end, environmentally friendly production model throughout the entire 'farm to fork' process. Dr. Barbara Baj Wojtowicz founded the Operational Group 'Agroforestry in the Zielawy Valley' to develop and implement solutions in this area.

## Objectives

The aim of the project is to develop a comprehensive, cost-effective and environmentally friendly herbal production, processing and distribution model that has been implemented and tested in a pilot farm and processing company.

## Activities

The model based on the developed technologies and methods was subjected to multidirectional analysis in real conditions. After the implementation stage, it was disseminated as a good production practice in the agroforestry system 'from farm to fork'. It is an example of agriculture that uses tools to mitigate climate change,

counteract its effects, such as drought, and to support biodiversity and soil restoration.

Specific activities carried out under this EIP Operational Group included:

1. Field research conducted by the Warsaw University of Life Sciences (SGGW) on the farm of Dr. Barbaray Baj Wójtowicz in Sosnówka and laboratory tests (soil, herbal raw materials). These resulted in the development of new cultivation technologies in agroforestry. Wild-growing species were introduced into cultivation according to the developed cultivation technology.
2. The farm was monitored for agroclimatic conditions and the data are transferred remotely and analysed in the Farm Cloud application, allowing for real-time production management. Special research equipment was also used in the enterprise to monitor the production conditions of the final pro-health products (humidity of air and herbal raw materials, temperature).
3. A focus group that worked on the subject along with laboratory tests of herbal raw materials introduced into cultivation have resulted in the development of new pro-health products. To examine consumer preferences, sensory and taste tests of the newly developed health teas, as well as of the health-promoting spices in 30 different dishes and products were carried out on a sample of 400 people.
4. A comprehensive programme for 'farm to fork' production management was developed with an IT developer.
5. The GHG emissions from the entire production process were tested to calculate the carbon footprint of end products.
6. A marketing method was developed that combines modern blockchain solutions with an artistic message referring to the tradition of the region – but due to COVID-19, the ETNO (European Telecommunications Network Operators) advertising session for Poland's Lublin Herbs company was postponed until 2021.
7. The Operational Group analysed several possible production models: conventional, ecological and agro-ecological. As a result of this research, a new, comprehensive, environmentally friendly model of herbal production, processing and distribution was developed and is currently being transferred to other farms (20 farms throughout Poland to date).

8. The website [www.lubelskieziola.pl](http://www.lubelskieziola.pl) has more than 1 000 visitors per month and contains the Knowledge Academy section. There are profiles in social media: the Facebook profile is followed by almost 4 000 people and the posts reach about 70 000 people per month. The Twitter account tracks users such as the EU Commissioner for Agriculture and the EIP-Agri Service Point. A newsletter reaches over 1 000 people.
9. In cooperation with the Agricultural Advisory Center, the book 'Agro-forestry - the most important innovation in agriculture', edited by members of the Operational Group, Dr. Barbara Baj Wójtowicz (Farmer) and Professor Ewa Osińska (research director) was published.
10. In 2018-2020, Operational Group members conducted nine training sessions and workshops on the farm for 457 people, ten lectures at conferences for over 3 000 people and 11 online training sessions for 1 126 people, additionally the farm accepted seven study visits for organised groups of farmers (350 people). Training sessions were conducted by Operational Group members in cooperation with the Agricultural Advisory Centre in Brwinów and the Regional Advisory Centres. A total of 3 200 people were trained, resulting in three more Operational Groups being established.
11. The farm of Dr. Barbara Baj Wojtowicz acts as a demonstration and training farm for other farmers in which educational activities are conducted by all Operational Group members.

The project is implemented by the Operational Group 'Agroleśnictwo w Dolinie Zielawy' founded by Dr. Barbara Baj Wójtowicz, who owns the farm where the project is being implemented, in cooperation with ECO-FARM Sosnówka sp. z o.o. (a micro-enterprise dealing in the processing of herbs), which acts as a Consortium Leader, and the Warsaw University of Life Sciences (a leading agricultural university in Poland).

### Main results

New cultivation technologies - As part of the project, six

new cultivation technologies for agroforestry systems were developed and tested on the farm. For the first time in the world, five wild-growing species were introduced to cultivation: cloudberry, forest speedway, turnip, vegetable thistle and lungwort. This contributed to the preservation of biological diversity, including the protection of endangered species in their natural habitats.

According to research, the profitability of agricultural production using the 'avenue agroforest system' is at least 60 % higher than through monoculture.

The comprehensive farm-to-fork agroforestry production model is tested under real-world conditions for cost effectiveness, environmental impact, GHG emissions, soil improvement and impact on biodiversity. New health-promoting products, such as teas and spices, were created from herbal raw materials obtained from these crops.

A programme for managing production 'from farm to fork' - Innovative solutions for the agri-food sector for production management 'from farm to fork' have been translated into digital technologies in cooperation with AgriSolutions. A breakthrough application was created on the FarmCloud platform - [www.farmcloud.eu](http://www.farmcloud.eu), which is available to farmers free of charge.

In 2020, the Agroforestry Cluster was established as a platform where farmers, entrepreneurs, agricultural organisations, agricultural advisors and other stakeholders can learn from the project results, exchange experiences and form new partnerships to transform agriculture into a sustainable and profitable production system.

In cooperation with the bank BNP Paribas, an 'Agro Akademia' (agricultural academy) was held, focusing on the developed sustainable technologies of agricultural production. It was attended by several hundred farmers, the bank's customers.

The model has been disseminated in Poland and abroad. It was presented, among others, at the 2019 4th World Congress of Agro-forestry in Montpellier, France and, in February 2020, at a conference organised by the European Commission in Poland. With its new technologies, this model of sustainable production 'from farm to fork' has been implemented in 20 farms in Poland and can also be transferred to farms in the EU.

#### Additional sources of information

[www.facebook.com/lubelskieziola](https://www.facebook.com/lubelskieziola)

[www.twitter.com/lubelskieziola](https://www.twitter.com/lubelskieziola)

[www.youtube.com/watch?v=6l-orgj73iU](https://www.youtube.com/watch?v=6l-orgj73iU)

[www.youtube.com/watch?v=F7KmY91xDPU&list=UUw741VZHziWYF7n-7bA&index=16](https://www.youtube.com/watch?v=F7KmY91xDPU&list=UUw741VZHziWYF7n-7bA&index=16)