



PROGRAMME OF THE
EUROPEAN UNION



COPERNICUS4REGIONS 2025

MOBILE APPLICATION FOR INDIVIDUAL FARMERS IN MAZOVIA

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When we see great popularity of the application, we are convinced of the need to scale it to the entire voivodeship

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✓ Mazovian Agricultural Landscape | Credits: Canva

Implementation and development of systems and services supporting modern agricultural production in Mazovia allows farmers to quickly and efficiently order soil tests and enables ongoing monitoring of humidity and plant condition.

THE CHALLENGE

Mazovian farmers face many challenges, including land fragmentation, aging workforce, climate changes and soil quality. Unpredictable weather patterns and droughts may severely endanger profitability of agricultural production. These issues are particularly significant for small farmers who are balancing on the edge of profitability on small fields. The ROLMApp application with Mobile Soil Diagnostic Center was created to help them deal with most of these problems.

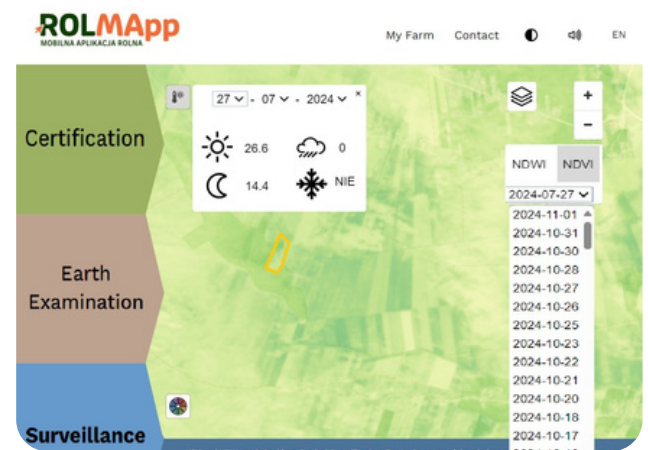
THE SPACE SOLUTIONS

The ROLMApp application was developed by the Masovian Voivodeship as part of the bigger project "Implementation of the Smart Villages concept in the Masovian Voivodeship".

Project started in 2020, was completed in 2023 and was entirely financed from the voivodeship budget. The basic functionalities of the application include viewing selected remote sensing data and weather information, ordering and management of soil tests, handling the farm certification process ending with the issuance of the Masovian Certificate and keeping an agri-diary for the farm.

All services are free of charge in three pilot counties of the Ostrołęka subregion (Ostrołęka, Ostrow and Przasnysz). NDVI and NDWI indicators are derived from Sentinel-2 satellite data. Application checks the availability of data for Mazovian region every day and downloads it to calculate the indicators. What may be important for individual farmers is that the indicators from the current and previous year can be viewed. Additionally, the application integrates data from 31 meteorological stations developed as part of the program of the Masovian Voivodeship Government.

Mobile Soil Diagnostic Center is equipped with two dedicated devices for soil testing – NIR scanner and XRF spectrometer with build-in vacuum pump for mineral analysis. Specialized operators collect soil samples and perform soil tests directly on the farm.



✓ ROLMApp Dashboard

THEMATIC AREA



Agriculture, Food, Forestry and Fisheries

REGION OF APPLICATION



Warsaw Capital and Mazovian Regional

SENTINEL MISSION USED



S2

COPERNICUS SERVICE USED



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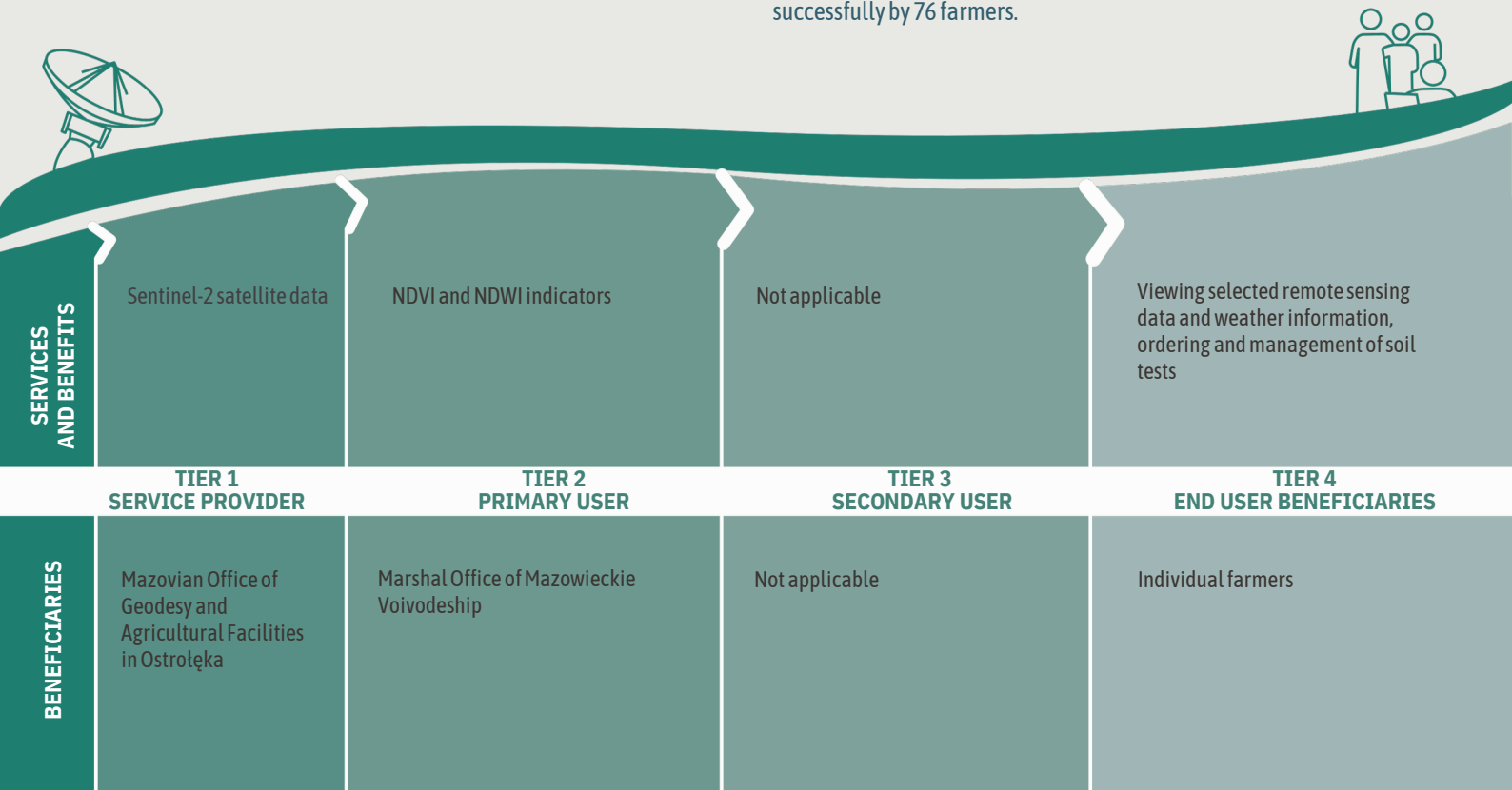
THE BENEFITS AND THE BENEFICIARIES

Since the application has been launched in October 2023, the number of unique user visits exceeded eight thousand. In order to maximize the reach of the application, access to NDVI and NDWI indicators has been made possible without logging in. Creating an account, which was chosen by 469 farmers, is necessary to order a soil testing and certification service. Over 1620 soil tests were performed, as one farmer can register several agricultural plots for testing.

Meanwhile the Masovian Certificate is a regional certificate which criteria are based on selected ecological certification standards. The main goal of the Masovian Certificate is to popularize farms producing agricultural products in the most similar way to organic production.

The system automatically analyses the intersection of the area of the agricultural plot with the buffers around the burdensome infrastructure (roads with heavy traffic or industrial complexes) in order to exclude plots located too close to them. Heavy metals content in the soil is analysed and may not exceed the threshold values specified in the Regulation of the Polish Ministry of the Environment.

After confirming the fulfilment of all parameters, system issues a Masovian Certificate and informs the farmer about the possibility of generating it in the ROLMApp application. The certificate is issued for one year. After this period, the farmer has the opportunity to extend the validity of the certificate. After a two years of the system's operation, the full procedure of certification was completed successfully by 76 farmers.



EU POLICY / DIRECTIVE



Common Agricultural Policy (CAP)

TYPE OF SERVICE PROVIDER



Public Service

TYPE OF FUNDING SOURCE



Other

USAGE MATURITY LEVEL



5



A FUTURE WITH COPERNICUS

It is planned to expand certification and soil testing services to the entire Masovia in the following years. Some new services are planned to be introduced: Normalized Diff. Moisture Index, fertilization plans for an agricultural plot, agro-business calculator for calculating profitability or a module for testing the condition of vegetable and fruit plants, along with a service for ordering plant testing performed directly in the field by the dedicated robot. After the application is extended to the entire voivodeship, a large-scale information and educational campaign will also be launched.



DID YOU KNOW?

The possibility of implementing additional functionalities is considered, among them: remote detection of soil contamination, crop forecasting, recognition of plants diseases and pests based on photos taken with a smartphone and additional data sources, including biosensors.



Acknowledgements

We would like to thank the Mazovian Office of Geodesy and Agricultural Facilities in Ostrołęka for their support in collecting data on the use of the system.



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