„Implementing innovative organic nutrient supply adapted to precision farming" – GRANOFARM

Call No. VP3-16.1.1-4.1.5-4.2.1-4.2.2-8.1.1-8.2.1-8.3.1-8.5.1-8.5.2-8.6.1-17

Project ID: 1924493826

The innovative operative group GRANOFARM was launched in 2019 with the aim to provide modern and sustainable technology to plant growers cultivating arable land, in order to ensure that pelleted and granulated organic and organic-mineral fertilisers are utilised as efficiently as possible in one go.

The project was implemented between 01 August 2019 and 31 December2023.

Total eligible costs of the project: HUF 174 755 428

Project outcome: precision organic-nutrient supply technology.

Members of the innovative operative group as a consortium: Agrogeo Kft., consortium leader, Hungarian University of Agricultural and Life Sciences, research centre, Ferenc László Kósa, specialist consultant, Szabolcs Czakó, Ferenc Kalmár and Márk Sági, farmers.

The changed economic environment and the need for energy efficiency have led the innovation group to focus on practice-oriented development in the following areas:

- Improving the mechanical durability and efficiency retention of pelleted and granulated crop enhancement materials.
- Precise description of the geometry and the physical and technical characteristics essential for efficient application simultaneously with sowing.

The problem we wanted to solve in the framework of the project:

- ✓ At present, we have no real idea about the mechanical durability of pelleted organic fertilisers and soil conditioning products marketed in our country and in the EU Member States, and how granules and pellets can be utilised in precision agricultural production based on their geometry and chemical composition.

- ✓ The project will provide a basis for the economical and efficient use of pelleted and granulated organic fertilisers and soil conditioners, approved and commercially available in the European Union, in hoe crops, mainly in growing corn, sunflower, rape and soya.

Main stages of the implementation:

- 1 August 2019 - 30 April 2021: carrying out plant experiments with biogas fertilisers with a fine-crumb structure and testing the mechanical durability of pelleted organic fertiliser preparations.

- For dry rotation test: production of fertiliser pelletised according to 4 and 6 mm diameter from fermented solid residues from agricultural biogas plants.
- Dry rotation test: 1 March 2021 - 31 March 2021: to establish the basis for the use of different pelletised fertiliser preparations on a large scale.
- 1 January 2021 - 30 November 2021: set-up of a large plot plant experiment at 3 sites; monitoring the application efficiency of the fertiliser preparations used in the experiment.
- 1 December 2021 - 31 October 2022: based on the results and experience of the 2021 experiments, testing the precision organic nutrient supply technology under field conditions: basic fertilisation, application of organic fertiliser pelleted simultaneously with sowing, application of a soil conditioning product to retain water before sprouting.
- 1 November 2022 - 1 November 2023: compilation of results necessary for the elaboration of a precision organic fertiliser supply technology and manual, based on the results of pelleting and wear resistance tests, dry rotation tests, semi-field and arable land in-field tests carried out between 1 August 2019 and 31 October 2022
- Between 1 January 2023 and 31 December 2023, the elaboration of the description of the invention was implemented. The patent entitled "Procedure for improving the efficiency of biomass-based crop enhancement preparations" was submitted under file number P 2300444 to the National Intellectual Property Office on 18 December 2023.
- 1 October 2023 - 31 December 2023: elaboration and finalisation of the prototype specification for the implementation of the application of pelleted organic nutrient sources simultaneously with sowing.