

## Long-Term Knowledge Transfer Program on Agricultural Big Data

As also in many other countries, there is already a wide range of agricultural data available in Estonia. There are operative data systems that collect for example soil data, plant pest distribution data, agricultural statistics, environmental data etc. Moreover, farmers often use farming machines that are able to collect and use data from the field. However, farmers are generally not eager to use all these opportunities, more or less likely it seems too difficult and time consuming for them. Therefore Estonian Ministry of Rural Affairs initiated an agricultural big data project through knowledge transfer long-term program that is part of Estonian Rural Development Programme 2014-2020.

The aim of this national level program is to create economic value added in agricultural production through efficient use of data, to support the development of precision agriculture and to promote environmentally-friendly agriculture. The Agricultural Big Data program will demonstrate to farmers how they can use existing data and applications. In order to achieve this goal, the program will establish an electronic system (tool) for agricultural Big Data, which shall link existing data to relevant analytical models and practical applications. In addition, the Big Data electronic system shall simplify for agricultural producers to submit agricultural information, e.g. for statistics and monitoring.

As part of the program an economic, legal and IT analysis of the agricultural data in Estonia have been performed. More than 40 relevant databases/datasources administrated by several government offices and universities were analyzed. Following to the analysis an electronic system will be developed, including electronic fieldbook and possibly some other e-tools, e.g. humus balance calculator, farm-gate balance calculator, plant protection recommendations, etc.

Phase I of the program (feasibility analysis) has been completed in September 2019. The organizers were Estonian Agricultural Research Centre (as leading partner), Estonian University of Life Sciences, Estonian Crop Research Institute and two private IT-companies – Tieto Estonia AS and E-Agronom OÜ.

Phase II (development) is expected to start in spring 2021 and to last approximately 2 years. Programme is lead by the Estonian Ministry of Rural Affairs, program council consists of representatives of the Estonian Agricultural Registers and Information Board, Estonian Chamber of Agriculture and Commerce, Farmers Cooperative KEVILI (the biggest grain and rapeseed growers association in Estonia), Estonian Rural Development Association, Ministry of Economic Affairs and Communications, Ministry of the Environment, government agency Statistics Estonia, Estonian Association of Information Technology and Telecommunications, and agricultural experts.

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