SUSTAINABILITY AND INNOVATION IN AGRICULTURE

INTERVIEW WITH MINDAUGAS DORELIS

Interview by Panevėžys Training Centre

CASE STUDY: AGRICULTURE, CIRCULAR ECONOMY AND INNOVATION

Mindaugas Dorelis, a student of environmental engineering at the Vytautas Magnus University Academy of Agriculture and head of the company Agrodronas, shared his insights into the use of unmanned systems in agriculture. Agrodronas is the first company in the Baltic States to introduce these technologies to the market, raising awareness among agricultural operators about their benefits. The company is not only striving for its own well-being, but also creating an ecosystem that helps other companies to develop. These technologies are constantly evolving and their use is expanding rapidly.

Mindaugas Dorelis, CEO of JSC Agrodronas

USE OF UNMANNED SYSTEMS IN AGRICULTURE

Mindaugas Dorelis identified two main applications for unmanned technologies: collecting and processing data for precision farming and performing agricultural tasks, such as spraying and spreading, using drones. In the past, drones have been small devices with limited capabilities, but they are becoming more versatile and efficient. Their technology allows them to combine artificial intelligence, the Internet of Things, the cloud and autonomous systems.

SUSTAINABILITY ASPECTS AND PRECISION FARMING

According to Mindaugas Dorelis, the collection, processing, and real-time use of data are crucial aspects of sustainability. Precision is achieved through advanced information technologies. The use of unmanned systems in agriculture makes it possible to:

- Less driving in the fields
- Reduce the amount of product use
- Reduce water consumption
- Reduce CO_2 emissions, as most drones operate on electricity

AGRODRONE AND THE EU GREEN DEAL

Agrodronas technologies align with the European Union's strategies to reduce emissions and protect biodiversity and soil. Operating without internal combustion engines, the drones do not emit CO_2, making this technology fully compatible with the EU's Green Deal.

ECONOMIC BENEFITS AND CUSTOMIZATION

Unmanned technologies are applicable to both small and large farms. Drone technology helps reduce costs as it is more affordable, performs equal or superior functions, and simplifies achieving profit targets for farms.

For example, in conventional crops, the target is €400 profit per hectare, while flower and berry growers can make tens of thousands of euros per hectare.

FUTURE TECHNOLOGY AND INNOVATION

In the future, the operation of unmanned systems will involve the use of digital technologies, artificial intelligence, cloud and robotics. Mindaugas Dorelis pointed out that the Internet of Things is being used every day, even if people do not notice it. Unmanned aerial vehicle technology uses about 70% of real-time data with a centimetre error. These advancements contribute to achieving technological sustainability. In the future, drones are anticipated to operate in swarms autonomously, without human intervention, utilizing artificial intelligence.

AGRODRONAS INNOVATION EXAMPLES IN LITHUANIA

There are already innovative farmers in Lithuania who are using these technologies in cereal crops, berry growing and horticulture. Mindaugas Dorelis shared that some farmers among their clients, recognizing the potential of these technologies, have restructured their entire farm operations to fully integrate drones. Technology is expanding beyond agriculture into forestry, water engineering, and fisheries, such as in pond disinfection.