

Short summary of the South Transdanubian online study visit of the Regions 4Food project

On 18 June 2020, the South Transdanubian Regional Innovation Agency (STRIA) organized its study visit within the Regions 4Food Interreg Europe project in an unusual way. Owing to the current Covid-19 pandemic, the meeting was held online. On this occasion the representatives of the seven partner regions, Hungarian and foreign stakeholders from the food industry and the agricultural sector also took part. The topic of the event was the presentation of the three South Transdanubian Good Practices in favour of the digitization of the agri-food industry.

At the beginning of the study visit, Mr. Zsolt PÁLMAI, deputy director of STRIA, welcomed the participants and briefly introduced the program of the study visit as well as the three speakers.

First, Mr. László FARKAS, managing director of Farkas Ltd. and his business partner, Dr. István BORSICZKY, managing director of Tomelilla Ltd. (precision farming machines and solutions) gave a presentation on the precision field farming. After playing three relevant videos on the Farkas Ltd. (that cultivates 630 hectares of field crop production), and on the different aspects of research and development of precision farming in Hungary, the digitized operation of Farkas Ltd. in Zimány was presented in detail. The presentation began with the main objectives of digitized agricultural production: efficiency, stability, environmental awareness and sustainability. One of the cornerstones of precision farming is that the homogeneous soil zones within the heterogeneous field receive different doses of treatment (nutrient, seed, pesticide). It is very important that the area is properly surveyed, which is usually done by soil scanning. Wide range of capacities are observed, among others physical diversity, soil humus content, and pH levels. Based on these data, the conditions of fertilization in the given areas are also to be determined. As a result, professionally validated doses are spread with safety, so the quality of the crop improves, the possibility of operational fault eliminates and the actual placements are automatically recorded. In addition, the herbicide savings are also significant. Finally, the results of precision field farming were discussed:

- the quality of placements improves,
- results in better utilization of available resources,
- has a better chance of increasing yields at a given cost level,
- results in cost savings,
- reduces environmental impact,
- improves the efficiency of labour,
- improves working conditions through the use of automation.

Being the second Good Practice in a row, the Bos Frucht Agrarian Cooperative was presented by Mr. Barna EGYED, the chairman of the board. The cooperative is a 100% family owned and managed business. They currently possess about 2,000 hectares of land, and by using the forage coming from these cultivated lands, 2,600 dairy cattle are kept. The average daily milk yield of these animals is

around 80,000 kilograms of raw milk per day. (In a vertical integration, a family owned dairy and processing company is based on this raw material base.) The cattle farm itself has modern production technologies: in 2013, at the time of refurbishment of the farm, cutting edge US technology was used. The owners also initiate continuous improvements in the operation of the farm. Among the further innovations applied, it is worth mentioning the cultivation of fertilizer-free forage (with manure irrigation used) on approximately 700 hectares (from the 2,000 hectares cultivated in total), as well as the efficient milking technology (a 72 unit rotary system is in operation). In terms of modern production technologies, the cooperative applies a “freestall” system, which indicates the bedding area where cattle are provided with cubicles (stalls) for resting. Feeding grounds and bedding areas are cleaned daily to maintain the comfort, health and production performance of the cows. In the freestall cattle handling system, the cows go into the milking parlour at least twice a day and spend the rest of the time in the stalls where they can rest, eat and move freely. In addition, the company introduced a high-tech milking process. In a rotary milking system, the cows walk onto a slowly rotating platform. The milker puts the cups on the udder of the cows, and cows are milked while the platform revolves. When a cycle is almost complete, the cups are automatically removed from the udder and the cow leaves platform. Bosch Frucht uses a new software to facilitate digitization, i.e. the Agrovir system. After its installation, inventory management, cost monitoring and analysis and workforce management became easier. The other digital solution is the HerdMetrix software package, which manages the information related to cow life management in a user-friendly environment.

Third, the Industry4.0 Technology Center of the Budapest University of Technology and Economics (BME) was introduced by Mr. László KOVÁCS, head of the center. The center was originally set up and operated as part of the Economic Development and Innovation Operational Programme project in 2017-2019. Its objectives were the supporting of small and medium-sized enterprises through “industry4.0 sample applications” of digitization and automation solutions/tools. The mission of the center is taking advantage of the fourth industrial revolution so that Hungary could have more and more modern and competitive enterprises. Therefore, the staff of the centre provides education and support to those companies being interested. Similarly, the center intends to get as many as possible I4.0 projects launched with the right resources in the country. Businesses need to create digitally supported efficient production systems where devices communicate with each other and collaborate along the value chain. Finally, Mr. KOVÁCS and his colleagues presented a “live demonstration” of three demonstration points at the Technology Center. Here we introduce two of them (feel free to study the third on the recording of the study visit taken), the first is the so-called “digital twin”. The essence of it that the intelligent system is able to optimize the production process based on the data created through the continuous communication of devices and products. The digital mapping of this physical system is called the digital twin. An intelligent system designed in this way can gather “experience”. The other was the “fault source identification” scenario. Typically, complex systems operate in an industrial environment and the components of these work together closely. Failure of one component will cause subsequent operation failure of several other components. The system created jointly by the BME Department of Automation and Applied Informatics (AUT) and NetVisor detects the source of such chain-like failures.

Following the presentations, participants of the study visit were able to get a comprehensive picture of the three Hungarian Good Practices. During the questions-answers section several questions were raised to the speakers, who were able to give detailed insight into the issue addressed.

Videos projected / recorded during the study visit:

The videos of Farkas Ltd. can be watched on the following YouTube links:

<https://youtu.be/EPsxKcTnEaQ>

<https://youtu.be/5SwQujLpxJM>

<https://youtu.be/YCD8wkpt23c>

The full video of the study is not public, but can be viewed at following YouTube link:

<https://youtu.be/FFnYFjxs4BM>

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