Press article
Digital technologies in agriculture

OKTOBER 2017

Press article 500words

Data-driven technologies increase Hungarian milk yields and milk quality

Precision livestock farming tools provide real-time info on rumen pH and temperature

Hungarian farmer and veterinarian Dr. Gabor Salyi is one of the many European innovators that see how a clever precision livestock farming (PLF) tool can help them address today's challenges. He has been using a PLF tool developed by a Hungarian company, that gives continuous real-time insight into dairy and beef herds' rumen conditions by checking pH and temperature values. Gabor sees the benefits: "The PLF tool tells me at which rumen pH level our milk production, quality and herd health can be optimised."

Every 10 minutes, a 13 cm bolus records the pH and temperature inside the rumens of cows and forwards this information to a receiver. The data are then sent to a database, which is the heart of the system. It stores data in the cloud, and processes and stores all pH and temperature values gathered from different herds and countries. The company that developed the tool has distribution partners beyond the Hungarian borders, in Poland, Czech Republic, Slovakia, Romania, Turkey, Iran, Canada, and it even started negotiations in Israel. Data sharing among these countries will create added value for general health monitoring, early detection of Acidosis, milk yield and quality improvement, and it will provide feedback on feed and farm management from which farmers will benefit.

By cooperating with companies and with farmers such as Gabor, the tool developers clearly see the necessity to focus on farmers' needs. "Together with the tool developers, we have tested the system to gain experience on how the obtained data can help discover and prevent the faults of feeding and management technologies", Gabor says. "We chose the peripartum period, which is the most critical time for the development of pathophysiological and metabolic disorders. We inserted a pH-measuring bolus into the rumens of 8 multiparous dry cows 10 days before the expected calving date." The observations made with the bolus were compared with the clinical signs that were exhibited by the cows, especially when decreased appetite was a characteristic sign. Together, Gabor and the developers looked for correlations between the daily changes in rumen pH, and management or feeding mistakes, drastic weather changes, and their severity. The results of the study confirmed that an abrupt change in the total mixed ration (TMR) that is fed may result in significant ruminal acidosis.

The tool converts raw data into automated alerts for farmers. Some cases where data were obtained by using the pH bolus show that management errors can cause major changes in rumen pH, with many unfavourable consequences. These errors include for instance a delay in milking time, technical defects of the feed carriage, changes in the feed formula, grouping, etc. "With this tool, Sub-acute Ruminal Acidosis (SARA) can be detected early on, and may even be prevented", Gabor says.

As an expert adviser, Gabor has now joined forces with 5 Hungarian farms and a university, to reduce SARA in dairy farming. They will use the PLF tool to monitor the rumen pH of dairy herds to introduce new procedures to detect and prevent SARA, to further increase milk yields and quality, and so to improve the productivity of Hungarian dairy farms.

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Hungarian farmer and veterinarian Dr. Gabor Salyi has been using a precision livestock farming tool developed by a Hungarian company. It gives continuous real-time insight into dairy and beef herds' rumen conditions by checking pH and temperature values. Gabor sees the benefits: "The PLF tool tells me at which rumen pH level our milk production, quality and herd health can be optimised and it gives me feedback on feed and farm management."

Every 10 minutes, a 13 cm bolus records the pH and temperature inside the rumens of cows. All data gathered from different herds and from over eight different countries worldwide is stored in the cloud. Data sharing among these herds and countries will create added value from which farmers will benefit.

By cooperating with companies and with farmers such as Gabor, the tool developers focus on farmers' needs. "Together we have tested the system to gain experience on how the obtained data can help discover and prevent the faults of feeding and management technologies", Gabor says.

The tool converts raw data into automated alerts for farmers. Some cases where data were obtained show that management errors can cause major changes in rumen pH, with many unfavourable consequences. "With this tool, Sub-acute Ruminal Acidosis (SARA) can be detected early on, and may even be prevented", Gabor says. As an expert adviser, Gabor has now joined forces with 5 Hungarian farms and a university, to reduce SARA in dairy farming and so to improve the productivity of Hungarian dairy farms.

Background information

More information on the PLF tool

More information on the PLF Tool 'VetAsyst': **www.moonsyst.com**
Read the study of Dr. Salyi here.

More information on digitisation in agriculture

- **EIP-AGRI Focus Group on Mainstreaming Precision Farming**
- **EIP-AGRI Seminar on Data revolution**
- **EIP-AGRI Workshop on Data sharing**
- **EIP-AGRI Seminar on Digital Innovation Hubs** (including **short report** and **final report**)

Funding opportunities for digitisation in agriculture

- During the **Horizon 2020 Societal Challenge 2 Infoweek**, the **2018 calls** will be presented. There will be calls on funding for digitisation projects in agriculture.

- The Rural Development Programmes' Managing Authorities regularly launch calls for setting up and running **Operational Groups** during the 2014-2020 period. Check out the

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'Operational Groups' dedicated section on the EIP-AGRI website, to find more information from your own country or region.

- The **European Space Agency Business Applications programme** offers funding opportunities for space-based services on the theme of 'Food & Agriculture'. Partners can propose demonstration projects and feasibility studies. More information on https://business.esa.int.
- On the topic of digitisation the **ICT-AGRI ERA-NET** offers funding opportunities on a yearly basis. More information on http://ict-agri.eu/node/13786/projects.

Publications available from November onwards

- EIP-AGRI brochure 'Shaping the digital (r)evolution in agriculture'
- EIP-AGRI brochure 'Horizon 2020 – calls 2018'

EIP-AGRI Inspiration on digital technologies from your country?

Here below you find a list of topics that have been covered in one of the EIP-AGRI events and / or EIP-AGRI publications.

Austria, Bosnia Herzegovina, Cyprus, Estonia, Finland, France, Germany, Greece, Ireland, Lithuania, Netherlands, Poland, Portugal, Serbia, Slovakia, Slovenia, Spain, Italy, Montenegro	Speed date market where companies proposed their digital technology tools	Seminar Data Revolution
Denmark	Improving welfare for cows... and farmers	Inspirational ideas
Estonia	Estonian potatoes and automatic weather stations: beating the late blight disease	Agrinnovation magazine 2014 – p. 11
EU	Mapped land-use data for farmers and forest managers	Horizon 2020 project
EU	ICT solutions for agrobiodiversity	Horizon 2020 project
EU	Saving time and resources with swarm seeding robots	Research project
EU / Spain	Robot versus weeds	Research project
France	Dealing with pests from the air	Inspirational ideas
France	Farm demonstrations, discovering drones	Inspirational ideas
Germany	Presentation: DIH for smart agriculture	Seminar Digital Innovation Hubs
Ireland	Staying in tune with farm performance	Inspirational ideas
Italy	Presentation: Mainstreaming Digital Agriculture': Agricultural Multi-Regional Guarantee Platform (AMGP)	Seminar Digital Innovation Hubs
Montenegro	Food traceability from honey to hive	Agrinnovation magazine 2017 – p. 16
Netherlands	Precision farming, the right technology and sharing knowledge are key	Inspirational ideas
Romania	Agriso	video

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Slovakia	Decision support tool for dairy farm management	Inspirational ideas
Spain	Presentation: Galician DIH for Agrifood industry	Seminar Digital Innovation Hubs
Sweden	Precision farming in organic production ? more efficient weed and fertiliser management for increased productivity	Research project
UK	EU-PLF, the farmers' perspectives	Video
UK	Data sharing through Farmbench	Inspirational ideas
UK	Farmbench	video

EIP-AGRI

The European Innovation Partnership 'Agricultural Productivity and Sustainability' (EIP-AGRI) is one of five EIPs which have been launched by the European Commission in a bid to promote rapid modernisation of the sectors concerned, by stepping up innovation efforts.

The EIP-AGRI aims to foster innovation in the agricultural and forestry sectors by bringing research and practice closer together – in research and innovation projects as well as via the EIP-AGRI network.

EIPs aim to streamline, simplify and better coordinate existing instruments and initiatives, and complement them with actions where necessary. Two specific funding sources are particularly important for the EIP-AGRI: the EU Research and Innovation framework, Horizon 2020, as well as the EU Rural Development Policy.

- EIP-AGRI Brochure on the EIP-AGRI Network (2015) (EN – FR – GR – HU – RO)
- EIP-AGRI Brochure on Thematic Networks under Horizon 2020 (EN – FR – HU – SP)
- EIP-AGRI Brochure on Funding opportunities under Horizon 2020 - 2018 Calls: to be published mid November 2017

EIP-AGRI Operational Groups

EIP-AGRI Operational Groups are groups of people who work together in an innovation project funded by Rural Development Programmes (RDPs). Operational Groups are the EIP-AGRI's main tool for turning innovative ideas into real solutions for the field.

An Operational Group consists of several partners with a common interest in a specific, practical innovation project. The people involved in the Operational Group should bring in different types of practical and, where necessary, scientific expertise. They may include farmers, scientists, agri-business representatives and many others. Every country or region has the possibility to define specific national demands or restrictions on how to put together an Operational Group.

- Visit the Operational Groups page on the EIP-AGRI website

EIP-AGRI Brochure on Operational Groups: Turning your idea into innovation (update 2016) (EN – CZ – HU – RO- SP)

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More information on Operational Groups in your country

If you would like to cover a story on an Operational Group in your own country,

you can find following information on the EIP-AGRI website:

- **Check if your country will/ has set up Operational Groups**
- **Check if your country has set up a website where you can find information on the OGs which have been selected for funding**
- **Check the EIP-AGRI meeting point for Operational Groups in your country**
- **Contact the EIP-AGRI press officer to help you further: ina.vanhoye@eip-agri.eu**

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