Schweizerische Eidgenossenschaft
Confédération suisse
Confederazione Svizzera
Confederaziun svizra

Federal Department of Economic Affairs,
Education and Research EAER
Agroscope
Media Service

Media Release

Date: 27. 01. 2015

Agroscope and CSEM working together to develop new agricultural technologies

Agroscope and the private research and technology company CSEM plan to intensify their collaboration. The two research organisations want to tap into the potential synergies that micro- and nanotechnologies, microelectronics, photovoltaics and communications technologies can offer for industry, agriculture, and the environment. The plan is to work together to create instruments and processes that will improve agricultural productivity while conserving natural resources.

Observing chewing, ruminating, and eating patterns can tell us a great deal about a cow's health. The Rumiwatch monitoring system uses sensors to identify changes in eating patterns. (Photo: Gabriela Brändle, Agroscope)

"Innovative technologies can help to make agriculture and the food industry more sustainable," explained Bernard Lehmann, Director of the Swiss Federal Office for Agriculture (FOAG), in his opening address at the event marking the signing of the memorandum of understanding on closer cooperation between Agroscope and CSEM. Production processes will increasingly be managed using new information and communications technologies, and sensors will collect data to feed into the process control system. Michael Gysi, CEO of Agroscope, and Mario El-Khoury, CEO of CSEM, agree that "there is a great deal of untapped potential in the agricultural sector." For example, the exact conditions in a particular field can be determined by using sensors in the ground and on plants in combination with aerial photography. Farmers can then use the information to identify areas that need more fertilizer, diseased crops, and sections requiring surface treatment. This targeted use of resources will reduce consumption of inputs and increase production.

Time-of-flight imaging, a technology developed by Mesa Imaging, a start-up launched by CSEM, is another example of how microtechnology can benefit agriculture. It measures reflection echoes to determine how long it takes for a light signal to bounce back from a 3D object in space to a sensor. The smart camera then calculates the distance to each point of the object. In automated milking systems, the teat tracking imaging system can be used to measure the exact spatial orientation between the teats and the milking cluster, allowing the milking suction cups to be positioned automatically and accurately (see text box).

Joint research projects

Agroscope and CSEM want to tap into the possibilities that innovative technologies can offer within the agricultural sector. CSEM has extensive experience working with sensors, microelectronics, analysis, and data processing. The combination of CSEM's specialist knowledge and Agroscope's agronomic expertise should open up new opportunities for the sector. The aim is to improve the quality of agricultural products and make processes more environmentally friendly, efficient, and accurate. To this end, experts from both institutes will work together to develop new ideas and to plan and implement research projects. The signing of the memorandum of understanding marks the beginning of closer collaboration between the two research organisations.

Milking machines demonstrate the scope for technical improvements

Milking is automated in over 400 dairy farms in Switzerland. The technology is already very advanced. The systems used are hygienic, are considered to be respectful of livestock, and give farming families more leisure time - animal welfare and improved productivity being at the heart of all developments in the field. Chemical sensors will be used to analyze a cow's milk and determine whether the animal is healthy, harboring an infection, or in heat. In the future, sensors will also be fitted in cow barns. By constant monitoring, dairy farmers will be able to make rapid adjustments to the feed provided, and gas sensors will help to reduce ammonia and methane emissions.

Contact

Thomas Anken, Head of the Agricultural Engineering Systems and Mechatronics Research Group
Agroscope, Institute for Sustainability Sciences ISS
Tänikon 1, 8356 Ettenhausen / Switzerland
thomas.anken@agroscope.admin.ch
+41 (0)58 480 33 52

Ania Biasio, Media Service
Corporate Communication Agroscope
Reckenholzstrasse 191, 8046 Zurich, Switzerland
ania.biasio@agroscope.admin.ch
+41 (0)58 468 72 74

www.agroscope.ch

CSEM

Georges Kotrotsios, VP Marketing & Business Development
Rue Jaquet-Droz 1, 2000 Neuchâtel, Switzerland
georges.kotrotsios@csem.ch
+41 (0)32 720 56 95

Sabina Müller, Strategic Communication Manager
Rue Jaquet-Droz 1, 2000 Neuchâtel, Switzerland
sabina.muller@csem.ch
+41 (0)32 720 52 26

www.csem.ch