



Einbeck, 14th April

More efficiency in plant breeding: Development of screening systems to measure plant vitality

KWS is participating together with renowned research institutes and other partners¹ in the quantiFARM² project funded by the German Federal Ministry of Education and Research (BMBF). The aim is to measure the vitality of plants by developing sensitive, robust and practical screening systems. This can promote more sustainable agriculture and create real added value for plant breeding.

“Plant breeding is a key factor in tackling future challenges such as climate change, population growth, conserving natural resources and reducing the use of pesticides. The aim is therefore to develop varieties that continue to secure agricultural yields through nutrient efficiency and plant health with low fertilizer use,” says Dr. Christoph Bauer, Head of Data Acquisition and Automation at KWS. “This is precisely where the quantiFARM project comes in: Modern, efficient and, above all, practical screening systems provide exact data on plant vitality within a very short space of time. This can make the complex process of plant breeding more efficient and promote more sustainable agriculture.”

The development of quantum detectors should in future make portable measuring devices available that are very small, require little energy, and can be used directly in the field, thus dispensing with the time-consuming process of sending samples to laboratories. Optical fluorescence measurement³ should also be used so that plant diseases, for example, can be detected at a much earlier stage. The sensors should also be able to record soil parameters. Until now, these light-sensitive measurements of plants have only been possible in darkened rooms. With the development of highly sensitive systems, measurements would also be possible directly in the field in sunlight. Using modern measuring devices to examine the vitality and the nutrient efficiency of plants means that accurate scientific data is available at short notice. That benefits plant breeding in particular, and KWS will integrate the insights gained into suitable breeding programs, wherever possible. Recommendations for action derived from this, for example, for more needs-based fertilization or more precise application of herbicides, contribute to more sustainable agriculture.

As a plant breeder, KWS supervises the field trials and coordination of the project, and is responsible for interpreting the measurement results. The trials are initially being carried out with sugarbeet at the Einbeck site and will later be transferred to other crops. Dr. Christoph Bauer: “We have almost 170 years of experience in breeding successful sugarbeet varieties, have built up a unique international trial system, and have collected extensive data over decades and made it available for breeding. We are delighted to support this project with our expertise.”

The project, which will run for a total of three years and is funded by the German Federal Ministry of Education and Research (BMBF) with a total of €3.7 million (funding rate 76.5%), was presented to the general public for the first time at Hannover Messe 2025. With its field trials and breeding expertise, KWS is making a major contribution to the research project, and receiving €350 thousand. If the project is successful, not only plant breeders could benefit from the development of the measuring devices and the associated assessment of plant vitality, but also forestry offices, agricultural service providers, or the plant variety offices in Germany and other countries – and ultimately, of course, farmers through improved varieties.

Conserving natural resources and minimizing the use of resources are both a goal in European agricultural policy and part of the KWS 2030 Sustainability Ambition, in which the company sets ambitious and measurable goals to deliver solutions for sustainable agriculture. The quantiFARM project specifically addresses these key aspects.

¹: Miopas GmbH, JB-Hyperspectral Devices GmbH, Asphericon GmbH

²: Quantitative optical differential diagnostics for environmental protection and sustainability

³: Determination of chlorophyll using fluorescence measurement: This method uses the ability of chlorophyll to emit light when it has previously been stimulated with light of a certain wavelength.

About KWS

KWS is one of the world's leading plant breeding companies. Nearly 5,000 employees* in more than 70 countries generated net sales of around €1.68 billion in the fiscal year 2023/2024. A company with a tradition of family ownership, KWS has operated independently for almost 170 years. It focuses on plant breeding and the production and sale of seed for sugarbeet, corn, cereals, vegetables, oilseed rape and sunflower. KWS uses leading-edge plant breeding methods to continuously improve yield for farmers and plants' resistance to diseases, pests and abiotic stress. To that end, the company invested more than €300 million last fiscal year in research and development.

*excl. seasonal workforce

More information: www.kws.com. Follow us on LinkedIn: [LinkedIn KWS Group](#)

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