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Oilseed rape disease clubroot: KWS crosses new resistance gene

An infestation with clubroot endangers oilseed rape crops worldwide. Depending on different environmental factors, maximum yield losses are possible. However, the resistance to the disease of previous varieties that are equipped with Mendelian genetics, is becoming increasingly less effective. With PBR1, KWS has now identified and decoded a completely new resistance gene and crossed it into the first varieties. The new genetics are very promising – this is also confirmed by official trial data from renowned agricultural institutes in Germany and France.

“With the new resistance gene PBR1 (*Plasmodiophora brassicae* resistance), we have discovered very strong genetics that represent a significant improvement over the currently available Mendelian genetics against the backdrop of increasing breakdowns in resistance,” says Susann Volkmann, who is responsible for the clubroot breeding program at KWS. KWS has been conducting intensive research into new sources of resistance to clubroot since 2011. The combination of the known Mendelian genetics with the newly developed resistance PBR1 is a decisive step forward, as it significantly improves the spectrum of action of the resistance. Susann Volkmann: “The aim is to broaden resistance to clubroot and thus protect rapeseed plants more effectively against infestation.” The Federal Plant Variety Office in Germany and GEVES (Groupe d’Étude et de contrôle des Variétés Et des Semences) in France have already tested the genetics in official trials and confirmed the effectiveness. KWS will launch its first variety, KWS KREATOS, in the 2025 season. It combines the new resistance gene with Mendelian genetics and is the promising start of a pipeline of variety candidates.

Clubroot:

Clubroot is a disease caused by a soil-borne pathogen (*Plasmodiophora brassicae*). Mostly areas where cruciferous plants, including oilseed rape, are traditionally grown are particularly affected. Infestation causes tuberous growths (root galls) on the main and lateral roots, which means that the plant can no longer be supplied with sufficient water and nutrients. The pathogen living in the soil can survive there for up to 20 years.

KWS as innovation driver in oilseed rape

By developing successful resistances and high-yielding varieties, KWS is again an innovation driver in the industry. It was, for example, the first company in the world to offer high-yielding winter oilseed rape varieties with the new phoma resistance gene RImS for the 2019/2020 sowing season in France. This year, another winter oilseed rape variety has been approved that is equipped with the new resistance source LepR1. In 2020, the renowned French agricultural research institute Terres Inovia certified that a winter oilseed rape variety from KWS is much less susceptible to the larvae of the cabbage stem flea beetle than comparable varieties from other breeders. In the meantime, KWS has launched further varieties with genetic protection against the cabbage stem flea beetle on various markets under the name InsectPROTECT.

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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