



Corteva Agriscience harnesses nature to unlock plant disease resistance

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Corteva Agriscience announced publication of research confirming the natural movement of disease resistance genes within a corn plant's genome. The research has implications for the application of new breeding techniques to reduce the devastating impact of plant diseases while improving yield potential and crop resilience. Published in a recent issue of *Molecular Plant Pathology*, the findings reveal that gene editing tools such as CRISPR can mimic this naturally occurring process, unlocking the ability to relocate multiple disease resistance genes, speeding plant breeding progress, and delivering enhanced high-performing products to farmers.

In March, Corteva announced that the early-stage use of proprietary gene editing technology to address several North American corn diseases was advancing through the company's R&D pipeline. Using CRISPR, the company can precisely co-locate disease resistance traits that already exist within the corn genome. With this recent peer-reviewed research, Corteva demonstrates that disease resistance genes move naturally to help plants fend off attacks from pathogens - but do so very slowly.

"A plant deals with a wide variety of pathogens, prompting its genes to naturally move around in the genome to resist disease and increase survivability," said Wendy Srmic, Vice President Biotechnology, Corteva Agriscience. "However, this natural gene

mobility occurs too slowly to effectively address the rapid growth of disease and climate-related pressures facing farmers around the globe. Through our research, we have validated the ability to mirror the movement of genes, enabling us to apply new breeding techniques to deliver seed that can better withstand field-level challenges."

In 2021, Northern leaf blight, Southern rust, gray leaf spot and anthracnose stalk rot combined to cost North America corn growers more than 318 million bushels in production. By leveraging new breeding techniques, Corteva is not only simplifying disease management options for farmers but also improving on-farm sustainability by reducing the need for additional crop protection product applications to help combat disease pressure.

"By innovating with advanced breeding techniques, we aim to create transformational change," added Srnic. "With these techniques, we can harness and replicate naturally occurring processes that accelerate the development of seeds with improved resilience and yield. We are committed to giving farmers more planting choices while continuing to safeguard our natural resources for generations to come."