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“Genome editing to enhance breeding technology at Syngenta”

Population growth and climate change pose potent threats to global food security for the coming decades. In order to tackle these challenges, genome editing in crop species by site-directed nucleases such as CRISPR-Cas9 and CRISPR-Cas12a is rapidly and fundamentally transforming agriculture. Many areas of opportunity exist for genome editing technology, for example introducing and breeding key commercial traits, fast-tracking germplasm improvement, and reducing seed production costs. Here, we report genome editing of CENTROMERIC HISTONE (CENH3) gene in wheat, leading to the first paternal haploid induction system with commercial potential in crops. This finding reduces the overall cost of goods, ensures inbred purity, and by accelerating Syngenta breeding pipelines, ultimately delivers innovative and sustainable solutions to farmers.