

Bayer bets big on climate-resilient crop technology

SANDIP DAS
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GLOBAL BIOTECH MAJOR

Bayer is stepping up its focus on using genome-edited technology to develop climate resilience agri-crop seed varieties at faster pace while continuing with development of transgenic varieties.

"We have not spoken too much about it in the past, but we are actually doing it. We are investing a lot not only through partnerships but also internally in genome editing. It is fundamentally transformational and breakthrough technology in the whole industry (seed)," Axel Trautwin, lead regulatory science, Bayer's crop science division, told FE.

He said that in terms of time required for varieties of seed development, genome editing is much faster compared to genetically modified (GM) technology and a lot of that lengthy development and regulatory process in case of GM crop is also much shorter.

"For developing herbicide and insect resistance varieties, we have to introduce some transgenic or GM concept, but for many other aspects such as increasing yield, climate resilience varieties where we modify the existing germplasm base within the same plant without introducing any foreign DNA like in case of GM crops," Trautwin said.

Amanda McClerren, head, plant biotechnology, Bayer Crop Science said that genome-edited technology is a separate process which 'has the potential to impact many crops such as corn, cotton and rice in India. "It's very promising, and it's very promising in geographies that don't allow transgenic traits," McClerren said. Bayer's first genome-edited corn and soybean varieties are likely to be released for commercial cultivation in the next four to five years.

"We're on a similar timeline for both corn and soy. And

GENOME PUSH



■ Bayer is investing heavily in faster genome-editing seed development

■ Genome-edited technology has the potential to impact many crops such as corn, cotton and rice in India

■ It enables modification of plants' owned genes, without insertion of external genes

we think pending the global regulatory framework, which is still developing, it'll be the early 2030s, so probably 2031 or maybe 2032," McClerren said. In addition, the company has an extensive breeding programme for cotton, canola, hybrid wheat and vegetables, and rice".

Genome editing enables modification of plants' owned genes, without insertion of external genes, as with GM crops. Genome-edited varieties possess no foreign DNA and are indistinguishable from crops developed through conventional plant-breeding methods, or using naturally occurring mutations.

In India, the environment ministry, in a notification in March 2022, had exempted certain types of genome-edited crops from the stringent biosafety regulations applicable to GM crops. The ministry had exempted site directed nuclease (SDN) 1 and 2 genomes from rules 7-11 of the Environment Protection Act, thus avoiding a long process for approval of GM crops through the Genetic Engineering Appraisal Committee (GEAC).

(The writer was in Huxley (Iowa) at the invitation of Bayer)