Seek

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Explain It: CRISPR

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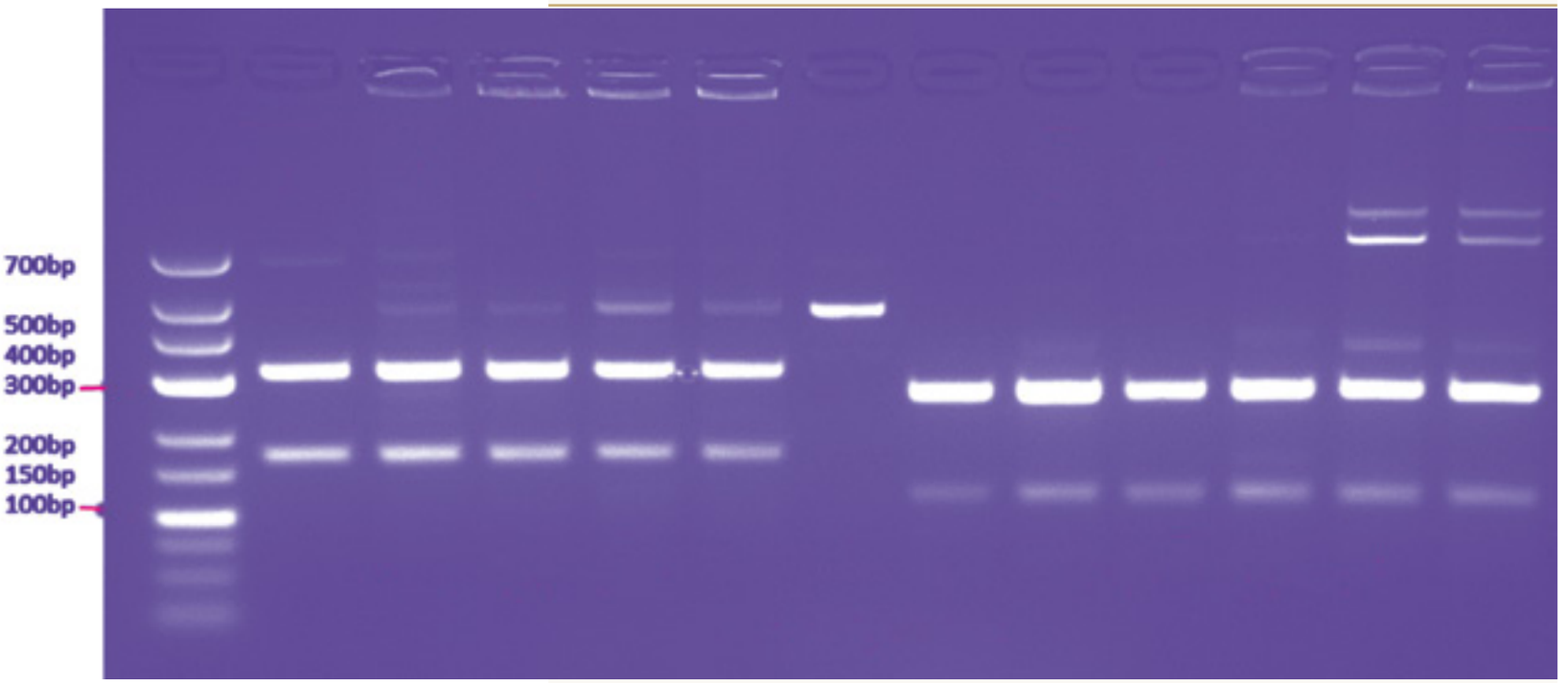

Top photo: The white bands in this image show DNA fragments that have been obtained from different wheat plants. By analyzing the size of these fragments researchers detect plants carrying CRISPR-Cas9-edited genes.

Bottom photo: Eduard Akhunov, professor of plant pathology, uses CRISPR technology in his wheat genetics laboratory.

CRISPR

/krɪspər/

Eduard Akhunov, professor of plant pathology, explains, in under 100 words, what CRISPR technology is and how it can revolutionize the global food system to feed the world's growing population.

CRISPR is part of the bacterial immune system and is designed to search and destroy invading viruses using a CRISPR-associated DNA-cutting enzyme called Cas9. Cas9 uses the short pieces of RNA as guides to detect invader's DNA and cut it. Scientists use this technique to precisely "edit" genes in any organism, including major agricultural crops. CRISPR-Cas9 is faster and more effective than traditional breeding methods and holds great promise to solve many problems in agriculture. Breeders have started using CRISPR-Cas9 to create crops that are higher yielding, more resistant to diseases and extreme climates, and more nutritious and tastier.