

# WHAT IF WE COULD MAKE CHIPS HEALTHIER?



## Upgrading our potato to improve health

**Solution:** Genome editing potatoes to reduce the unhealthy effects that result from processing.

### Did you know?

Potatoes can provide more carbohydrates, proteins, minerals, and vitamins per unit area of land than many other food crops. Maximising their potential will help us reach the third UN Sustainable Development Goal of Good Health and Well-Being.

Whether you have them fried, boiled, or oven baked, potatoes probably make up a part of your diet. In many developing countries it is a major staple food, so much so that in 2008 the United Nations celebrated the “international Year of the Potato” to highlight the potato’s role in defeating food shortage, poverty, and malnutrition. Nonetheless, genome editing can improve even this super crop.

Research focuses on genome editing in order to achieve more efficient results than traditional plant breeding. Genome editing tools allow scientists to change individual letters of the genetic code with high precision, with essentially the same outcome as traditional breeding with spontaneously arising mutations. In 2015, Scientists at CellecTis edited potato plants using the TALEN genome editing tool to reduce the accumulation of a type of sugars. These sugars, building up after cold storage, cause processed potatoes to become brown and bitter-tasting with elevated levels of acrylamide – a potential cancer-causing agent. To prevent this, the researchers made a targeted edit to knock out one gene. The resulting potatoes had no detectable amount of the unwanted sugars and when processed into chips, had reduced levels of acrylamide.

So, whether fried or oven baked, as crisps or chips, genome editing could make potatoes even better in the future.

*Genome editing is*

**#InspiredByLife**

“By using new plant breeding technologies (like CRISPR), we can significantly enhance potato production, and address the challenges of food security”

**Syed Shan-e-Ali Zaidi,**  
Gembloux Agro-Bio Tech,  
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