



**Better crops,
better health**

NGT CROPS FOR ENHANCED NUTRITION



COFFEE

Tropic Biosciences is developing gene-edited coffee plants that naturally produce **lower caffeine levels** by switching off caffeine-producing genes. This innovation aims to **eliminate the need for traditional chemical decaffeination methods, which can negatively affect flavour**. By maintaining the coffee's authentic taste and reducing processing, this approach offers a **healthier, more sustainable option** for consumers and the supply chain alike.



GRAPE

GreenVenus has developed gene-edited wine grape cultivars that **naturally resist oxidation, reducing or eliminating the need for sulfite preservatives in winemaking**. By targeting and disabling polyphenol oxidase genes, these grapes maintain their colour and flavour without additives. The **new Colombard and Malbec varieties are currently available for planting to growers and winemakers through licensing agreements**, with additional cultivars expected to follow soon as part of a phased rollout.



SOYBEAN

ToolGen Inc. has developed gene-edited soybean varieties with elevated oleic acid levels by modifying the FAD2 gene. These high-oleic soybeans offer **improved oil stability** and a **healthier fatty acid profile**, potentially **reducing the formation of trans fats in processed foods**. The development is currently undergoing regulatory review, with commercialisation plans contingent upon approval.





WATERMELON

Elo Life Systems is developing a **zero-calorie, plant-based sweetener** by gene editing watermelon plants to produce mogroside V—the intensely sweet, natural compound found in monk fruit. This innovation promises a cleaner taste than many artificial sweeteners and no aftertaste, while offering a **more sustainable and affordable alternative** to traditional monk fruit cultivation. Commercial launch is expected later in 2025.

WHEAT

Researchers at the **Institute for Sustainable Agriculture (CSIC)** in Córdoba, Spain, in collaboration with **PBL Technologies**, have developed **wheat lines with up to a 97.7% reduction in gliadin content**—the primary gluten component responsible for triggering celiac disease. This breakthrough **offers potential dietary benefits for individuals with gluten sensitivities or celiac disease**. The development is currently at the research and development stage, with further studies and regulatory assessments underway to evaluate its suitability for commercial cultivation and consumption.



TOMATO

Sanatech Seed, in collaboration with the **University of Tsukuba**, has developed the Sicilian Rouge High tomato, a genome-edited variety with **4–6 times more gamma-aminobutyric acid (GABA) than standard tomatoes**. GABA is a bioactive compound associated with **cardiovascular and neurological benefits**. The variety was developed using CRISPR/Cas9 technology to knock out a gene that suppresses GABA accumulation. It was approved for sale in Japan in 2021 and became the **country's first genome-edited crop to reach the market**, now available as fresh produce and seedlings.



NGTs can be a quick way to tackle nutrition deficiencies and improve health globally

Global nutrition and health are inextricably linked to the crops we grow and eat. Nearly 2 billion people worldwide suffer from micronutrient deficiencies, and the production of nutrient-rich crops faces numerous challenges, including climate change, land degradation, and pest pressure. To address this, New Genomic Techniques (NGTs) can provide a faster and more precise approach to improving the nutritional content of crops.

NGTs can increase levels of essential vitamins, minerals, and beneficial compounds in crops, helping to combat malnutrition and address dietary gaps while reducing trade offs, like lower yields or increased disease susceptibility. According to the Food and Agriculture Organization (FAO), plant breeding is one of the most effective ways to improve global health through better nutrition, and NGTs significantly speed up this process. These techniques enable the rapid development of healthier, more nutrient-rich crops, making them available to consumers sooner.

By using NGTs, we can improve food and nutritional security, enhance diets, and promote more sustainable agricultural practices, creating a future where crops not only feed us but also improve our health.



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