



HOW NGTs CAN HELP ACHIEVE SUSTAINABILITY GOALS



WHY DO WE NEED SUSTAINABLE FOOD SYSTEMS?

2050



Increasing Global Demand

By 2050, the global population is expected to reach nearly 10 billion, intensifying pressure on food systems. Meeting this demand will require innovation and more efficient agricultural practices to ensure food security for all.



Health and Nutrition

Sustainable food systems not only focus on reducing environmental harm but also aim to improve the quality of diets. Creating food systems that support healthy diets (such as enhancing the nutrition of food crops and making nutritious food more appealing and accessible) could help to address widespread malnutrition.



Environmental Challenges

The world faces significant environmental challenges, including resource depletion, climate change impacts, and biodiversity loss. Innovation in agriculture is essential in meeting growing food demands and contribute positively toward the UN Sustainable Development Goals.

HOW CAN NGTs LEAD TO MORE SUSTAINABLE FOOD SYSTEMS?

Reducing Environmental Footprint

New Genomic Techniques (NGTs) can enable crops to be more resistant to diseases, pests and environmental stresses. This could reduce farmers' reliance on certain inputs like chemical pesticides and fertilizers, as well as improving their efficiency.

Enhancing Crop Resilience

With NGTs, crops can be designed to adapt to climate change, increasing the resilience of farmers and maintaining the productivity of existing farmlands.

Optimizing Resource Use

NGTs can help develop crops that use water and nutrients more efficiently, improving productivity and reducing farmers' environmental footprint.

WHAT EXAMPLES ARE OUT THERE?

Drought Tolerance

Researchers have used genome editing to develop drought resistance in various crops, such as rice and sorghum with improved stress response, or wheat and barley with enhanced root development. Such new crop varieties could also enable farmers to use less water, reducing their costs, as well as contributing towards sustainability. Under drought conditions, these improved crops varieties can maintain their yields, protecting farmers income.



Higher Yields

In Australia, researchers have developed a variety of wheat with larger grains and improved yields by modifying a gene that influences the size and weight of the grain. This could allow farmers to produce more on fewer hectares of land, reducing their environmental footprint.



Disease Resistance

Using the genome editing tool CRISPR-Cas9, scientists have developed a rice variety that is resistant to a fungus that causes 'rice blast', a devastating disease that causes severe crop losses around the globe every year. Advancements such as this could have vast consequences for global food security.

