

GENE EDITING FACTS

To achieve our vision of “a world where the best quality seed is accessible to all, supporting sustainable agriculture and food security”, ISF believes that science and innovation must continue to flourish. The latest plant breeding methods can accelerate the improvement of seed varieties for the benefit of agriculture and consumers globally.

Gene editing is a vital tool for global advancement in crop production

Plant breeders are working to address the need for affordable food and develop solutions for a changing climate by applying gene editing as an additional, and critical, plant breeding tool. Gene editing’s improved efficiency compared to more traditional breeding methods allows plant breeders to more rapidly and efficiently develop and deliver new varieties adapted to changes in climate and to contribute to a healthy, safe, and secure food supply.

DRIVING MORE EFFICIENT PROGRESS

Plant breeders are foundational to progress in agriculture, developing new plant varieties that feed and fuel the world. Delivering on this goal is a challenge because of the pace of global change. Plant breeding requires foresight and innovation because the breeding process, no matter the method used, can take years of a selection and performance evaluation before a new variety is ready for the market.

Gene editing offers improved precision and efficiency when incorporated into the breeding process.¹ This doesn’t mean plant breeders spend less time evaluating gene edited plants. Gene editing is also a research tool that helps us to learn more about genetics and gene interactions which, in turn, decreases the cost and time of initial research and development. With these efficiencies, plant breeders can develop more choices for farmers.²

To offer the right choices that farmers need to drive progress, plant breeders must predict demand for certain types of crops years in advance.³ Whether it’s the need for drought

tolerance or a resistance to a specific pest, plant breeders can address these issues faster than ever before by using gene editing to develop these improved crops.⁴

HELPING FARMERS DELIVER SOCIETAL BENEFITS

Agriculture involves a series of choices and trade-offs, which are necessary to balance environmental impacts, farmers’ livelihoods, and the need to grow food for the world in a more sustainable way. When farmers can choose the right seeds for their land, it improves the likelihood of better yields. Diversity of seed choices also helps farmers fight pests and disease and allows them to adjust to changing climate patterns.

Access to improved seeds ensures farmers can participate in agriculture innovation and take advantage of progress in agricultural productivity. Gene edited crops can play an important role in enhancing the sustainability of many different agricultural systems-- regenerative practices, precision technology, and even organic farming practices can all leverage advancements in gene edited crops.

THE BOTTOM LINE

Gene editing is an important tool

Crops developed with the help of gene editing are expected to contribute to many important societal objectives – the reduction of the environmental footprint of agricultural production, the reduction of food waste, and the improvement of the nutritional value of food, especially for at-risk populations.⁵ Through current and future applications, gene editing has the potential to be a key contributor in driving global progress, including helping to accomplish the United Nation’s Sustainable Development Goals, and reaching the ambitious goal of achieving net-zero emissions by 2050.