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NEW DELHI, 18 November 2021: Agriculture is the story of generations of famers and pioneers who selected edible plants and grew them over time to make them healthy and flavourful.

Today, we enjoy the fruits of their observations and efforts. Their journey has been continued by scientists and plants breeders who are passionate about growing healthy plants with abundance of nutrition. They too are selecting, breeding and growing plants that are better suited for our farms, gives more yield to farmers as well as health benefits to consumers.

Plant breeders look for the one plant with better features, cross and multiply it further. This is a continuous process and allows them to come up with better varieties every few years.

With deeper knowledge accumulated over time about the growth, optimal conditions and features of plants, breeders today are better equipped to develop improved varieties. The available genetic information and automated technology also helps in the

They have become more efficient in choosing which crops to breed and in identifying beneficial characteristics to grow high yielding, healthier and pest-resistant varieties. This was evident in the mid-20th century when Norman Borlaug led the first Green Revolution, leveraging humanity's knowledge of plant breeding to double wheat yields, feeding billions globally.

However, the randomness of the process, elaborate, laborious selection and multiple generations of crossing remain as bottlenecks.

The latest breeding tool of gene editing uses the traditional knowledge and genetic information of the crop to precisely make specific desired changes that can be ready for cultivating in the field in 1-2 years compared to the previous timeline of 8-10 years for different crops.

Gene editing works by tweaking the features in the plants without adding any gene from another plant. This new plant breeding tool differs from classical genetic engineering which is used to introduce desired characteristics that are outside of the plant's gene pool.

Gene editing allows breeders to work within a plant's own gene pool to get the same result as they would through more

The specificity and efficiency of the process makes it a very economical and desirable tool for the plant breeders. The investment for developing a new variety in a well-studied crop is quite reasonable and affordable for small and medium sized companies.

Since the final product is similar to the one that can be obtained by conventional breeding, it should be similarly regulated. Heavy regulations for gene edited varieties will delay research, increase cost and take them away from the reach of small, local and diverse developers.

This would be a loss for both farmers and consumers as they will not get reasonably priced, improved crop varieties or produce. Gene editing can not only help make staple and cash crops better, it can also help revive the indigenous varieties that has been lost or reduced due to environmental stress.

Reasonable and differentiated regulations for the technology will allow gene editing to contribute towards creating a better environment and global food security in the near future.

Gene editing could provide opportunities to target global challenges as well as local needs and can help us achieve sustainable agriculture and food security.