

Accepted Manuscript

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PII: S0888-7543(17)30063-0  
DOI: doi: [10.1016/j.ygeno.2017.07.007](https://doi.org/10.1016/j.ygeno.2017.07.007)  
Reference: YGENO 8904

To appear in: *Genomics*

Received date: 8 June 2017  
Revised date: 21 July 2017  
Accepted date: 25 July 2017



Please cite this article as: Niaz Ahmad, Zahid Mukhtar , Genetic modifications of crop plants: Issues and challenges, *Genomics* (2017), doi: [10.1016/j.ygeno.2017.07.007](https://doi.org/10.1016/j.ygeno.2017.07.007)

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**Genetic modifications of crop plants: issues and challenges**

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**Abstract**

An alarming increase in the human population necessitates doubling the world food production in the next few decades. Although a number of possible biotechnological measures are under consideration, central to these efforts is the development of transgenic crops to produce more food, and the traits with which plants could better adapt to adverse environmental conditions in a changing climate. The emergence of new tools for the introduction of foreign genes into plants has increased both our knowledge and the capacity to develop transgenic plants. In addition, a better understanding of genetic modifications has allowed us to study the impact that genetically modified crop plants may have on the environment. This article discusses different techniques routinely used to carry out genetic modifications in plants whilst highlighting challenges with them, which future research must address to increase acceptance of GM crops for meeting food security challenges effectively.

**Key words**

Genetic modifications of crops, precise genome editing, removal of selection markers, gene flow from GM crops, non-nuclear transformation

**Abbreviations**

*Bt* = *Bacillus thuringiensis*

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