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## GENETIC ENGINEERING IN AGRICULTURE

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### ABSTRACT

Genetic engineering, also called genetic manipulation of organism genes using biotechnology. It is set of technologies used to change the genetic makeup of cells, including the transfer of genes within and across the species boundaries to produce improved organisms. New DNA is obtained by either isolating or copying the genetic material of interest using recombinant DNA methods. Genetic engineering is rapidly replacing traditional plant breeding program and has become the mainstay of agricultural crop improvement. The rises of commercialized genetically modified crops have provided economic benefit. Genetic engineering has contributed to significant improvements in agricultural crops, and plants with resistance against herbicides in commercial plantation world wide. The relative new technology has potential to improve quality and yield of agricultural products and newly developed products for human consumption hold the promise significantly contribute to human health and welfare.

**KEY WORDS:** Genetic engineering, Biotechnology, Agriculture, Recombinant DNA Technology.

### 1.INTRODUCTION

Worldwide, almost 90% of human food supply is provided by only 15 crop species and 8 livestock species. Introducing genes from various organisms into crops and livestock has long been regarded as a promising way to ensure the continued productivity of agriculture and forestry (1). Genetic engineering is the direct manipulation of organism's genome using modern DNA technology. It is also called genetic modification. It involves the introduction of foreign DNA or synthetic genes into the organism of interest or by altering the sequence of a gene to convert it to different gene or deletion of an undesirable gene (2). The resultant DNA is called recombinant DNA. Thus it is also called recombinant DNA technology. The introduction of new DNA does not require the use of classical genetic methods; however traditional breeding methods are typically used for the propagation of recombinant organisms. Various terminology are used in this techniques such as- the gene that is transferred into a new host is known as transgenic. The organisms developed after successful gene transfers are known as transgenic. The plants which carry the stably integrated foreign gene is called transformed plants. When a foreign gene is inserted into organism it is called transgenic organism. When an undesirable gene is deleted from an organism it is known as genetically modified organism but not a transgenic organism. Neither thus all transgenic are GMOs but all GMOs are nor transgenic.