Genetically Modified Crops and Plant Breeding

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The roots of biotechnology date back some 12,000 years when man learned to select the best seeds for planting and to domesticate animals. The genetic improvement of plant varieties has been the main objective of plant breeders since the inception of plant breeding. Plant breeders use a broad range of techniques including inter-specific hybridization, polyploidization, embryo rescue, mutagenesis and cell fusion. These processes have been employed safely for decades.

More recently plant breeders have employed gene transfer or genetic engineering as an additional tool for improving crops. Gene transfer through recombinant DNA techniques enables a small piece of highly characterized DNA to be inserted into the genome of a plant species (transformation event), allowing the genetically enhanced plant to acquire a new desired trait. As with other technologies when first used, plant breeders are very aware of the importance of safety related to plant varieties developed through gene transfer.

Numerous regulatory authorities worldwide have concluded that gene transfer technology as such presents no unique risk to human or animal health or the environment and is as safe as other plant breeding methods. These groups include official commissions, scientific bodies, and international organizations, such as the OECD and the Codex Alimentarius, which are staffed with experts from all relevant disciplines.

In fact, countries have introduced stringent requirements to test transgenic crops. These include in general terms a number of very carefully monitored field trials that have to meet detailed planting and isolation conditions. The transformed product has to satisfy requirements for food, feed and environmental safety, in order to be released and/or commercialized.

The position of ISF is that

- Food and feed safety assessments should be harmonized among countries and based on the internationally accepted principle of substantial equivalence, as defined by the OECD. Countries should take immediate steps toward the mutual acceptance of food and feed safety assessments in order to avoid unnecessary and duplicative national approval processes.
- Once a transformation event is approved, commercialization of plant varieties containing that event, in those countries where approval has been successful, should be submitted to the same regulation as for any other plant variety.
- Once a new transformation event has been determined by a recognized authority to be safe for human or animal health and the environment then plants containing it should be useable in further plant breeding and any progeny containing the same transformation event should be covered by the original commercialization approval.
- A new transformed product has been established as being substantially equivalent to existing plant products in commerce, there should be no further scientific concerns

about the safety of processed products relating to the method of plant variety development.

- If an approved product derived from genetically modified plants is not substantially equivalent to an existing product, it should be appropriately labeled to indicate the characteristic or food property, which is different. This would include composition, nutritional value, or intended use. In addition, the seed industry offers an open information policy and documentation on their products.

ISF supports plant breeders' efforts to continually improve plant varieties using the full range of technologies available to them, of which recombinant DNA technology is one. The safety of genetically modified plant varieties is ensured through a most rigorous and comprehensive set of regulatory and quality assurance systems. New plant varieties however derived will be essential for improving the food and feed supply of the world and promoting environmental sustainability. Plant breeders must be able to exploit knowledge and use any plant breeding technique within the framework of an enabling regulatory system that ensures consumer and environmental safety but allows technological progress for the benefit of mankind.