

## TRANSGENIC PLANTS AND THE ENVIRONMENT (2003, R2008)



### **Policy Statement**

The American Society of Landscape Architects supports establishing and applying environmentally respectful criteria in the oversight, development, and use of genetically modified plants in the landscape. ASLA further endorses the overall regulation of transgenic plants through interagency governing cooperation of the various relevant regulatory agencies. ASLA endorses the use of long-term empirical studies to assess the potential environmental effects resulting from the development and use of genetically modified plants.

ASLA's concern regarding genetically modified plants does not lie with any one company, product, university, or government agency. Rather, ASLA is concerned about the larger issue of how genetically modified plants are approved for distribution and application by each of the three relevant regulatory agencies, USDA, EPA, FDA, and if the consequences of their introduction to the environment are being adequately explored and weighed against their short and long term benefits.

### **Rationale**

Acknowledging the potential for value, ASLA's concern regarding genetically modified plants does not lie with any one company, product, university, or government agency. Rather, ASLA is concerned about the larger issue of how genetically modified plants are approved for distribution and application by the relevant regulatory agencies, and if the consequences of their introduction to the environment are being adequately explored and weighed against their short and long term benefits.

Biodiversity and genetic changes are a part of the process of evolution. However, human activities, intentional and not, have accelerated this process by hybridizing or relocating plants into non-native environments. Now, manipulations of plant genes are evolving more rapidly than ever without adequate evaluation and oversight of the potential effects by these modifications on the environment. Genetically modified, or transgenic, organisms are created through genetic engineering techniques that allow genetic material to be moved between similar or vastly different organisms with the aim of changing their characteristics for a purpose.

The relationship between the genetic material of organisms and the ecosystems in which they live is complex. Human manipulation of genetic material may upset the delicate balance of those environments. The knowledge-base regarding the long-term ecological impacts of these plants is limited because the exponential rate of change, duration of affect and current processes of risk assessment and management are not providing the necessary data. Ongoing empirical research is needed to evaluate the outside environmental influences on as well as impacts of human controlled modifications to genes across species. Part of this research and the associated peer review includes assessing the relationship between the risks and benefits of transgenic plants in different ecological systems, identifying the success or failure of management controls applied when using these plants, assessing the short and long term economic impacts of these plants, and identifying funding sources for research. Before any assessment research can take place about transgenic plants, a baseline for the existing environmental conditions needs to be identified. This baseline should include an analysis of the full range of existing environmental and economic conditions.



A number of potential benefits and risks of transgenic plants have been identified. The benefits of transgenic plants include: Pest and disease resistance; herbicide tolerance; cold, drought, and salinity tolerance; increased crop yield and nutritional values; pharmaceutical uses; phytoremediation and soil and water conservation; retention of genetic diversity; and reduced environmental impacts from pesticides and herbicides. The potential risks associated with the use of transgenic plants include: Unintended harm to other organisms, including beneficial, non-native, and native species, through direct or indirect effects; reduced effectiveness of pesticides and herbicides; gene-transfer to and other impacts on non-target species; allergenicity and other unknown effects on animal, including human, health; invasiveness; new viral diseases; variability and unexpected results through cascade and cumulative effects; and reduced genetic diversity.

The need for further dialogue between the appropriate regulatory agencies of the Federal government, the scientific community, sponsoring and interested corporations, and the general public is evident. ASLA is in support of adopting responsible research into, application of, and regulation of transgenic plants when balanced with a respect and care for the environmental systems of this planet at all scales.