

# Genetic Glass Ceilings: Transgenics for Crop Biodiversity

Jonathan Gressel



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As the world's population rises to an expected ten billion in the next few generations, the challenges of feeding humanity and maintaining an ecological balance will dramatically increase. Today we rely on just four crops for 80 percent of all consumed calories: wheat, rice, corn, and soybeans. Indeed, reliance on these four crops may also mean we are one global plant disease outbreak away from major famine.

In this revolutionary and controversial book, Jonathan Gressel argues that alternative plant crops lack the genetic diversity necessary for wider domestication and that even the Big Four have reached a "genetic glass ceiling": no matter how much they are bred, there is simply not enough genetic diversity available to significantly improve their agricultural value. Gressel points the way through the glass ceiling by advocating transgenics? a technique where genes from one species are transferred to another. He maintains that with simple safeguards the technique is a safe solution to the genetic glass ceiling conundrum. Analyzing alternative crops?including palm oil, papaya, buckwheat, tef, and sorghum?Gressel demonstrates how gene manipulation could enhance their potential for widespread domestication and reduce our dependency on the Big Four. He also describes a number of ecological benefits that could be derived with the aid of transgenics.

A compelling synthesis of ideas from agronomy, medicine, breeding, physiology, population genetics, molecular biology, and biotechnology, *Genetic Glass Ceilings* presents transgenics as an inevitable and desperately necessary approach to securing and diversifying the world's food supply.

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