

GEOGRAPHIES OF RISK AND DIFFERENCE IN CROP GENETIC ENGINEERING

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ABSTRACT. Genetic engineering is often depicted as a breakthrough solution to hunger and environmental problems in agriculture. Such claims encourage the further shift of public resources toward molecular sciences, globalized intellectual property rights, and relaxed biotechnology regulation. However, focusing on transgenic crops is a risky and inadequate response to socioeconomic and ecological challenges. The search for a universal, technological solution disregards the complex geographies of food production and trade. This article challenges claims that crop genetic engineering represents a new direction in agriculture, that transgenic crops have performed well, and that the regulatory approaches used in the United States or Europe are universally applicable. It outlines three geographies of difference that distinguish agriculture in the global North from farming in most of the global South. Those differences point to the need for more place-specific, multifaceted, and farmer-centered approaches to agricultural productivity and sustainability, approaches to which geographers have much to contribute. *Keywords:* agriculture, biodiversity, biotechnology, development, green revolution, intellectual property.

Claims are commonly made that new agricultural biotechnologies can prevent the looming crisis of global agricultural productivity. Crop genetic engineering, say its advocates, is essential to produce sufficient food for a burgeoning world population without immense ecological damage (for example, Pardey 2001). The U.S. government, in cooperation with agribusiness interests, actively promotes this idea. The World Bank, the Food and Agriculture Organization of the United Nations (FAO), and the U.N. Development Programme (UNDP) view crop genetic engineering as central to agricultural development policy. Molecular biotechnology has become a high priority of the Consultative Group for International Agricultural Research (CGIAR), the institutional base of the green revolution, which is now overseen by the World Bank and remains the primary international network of seed banks and centers of research on agriculture for the global South.

This article argues that advocates of a biotechnology-centered approach to food security rely on unwarranted assumptions about the superiority and universal applicability of European and U.S. technology, regulatory institutions, and food-producing systems. This is true even of the many biotechnology proponents who acknowledge the ecological risks of genetically modified (GM) crops and the difficulties of transferring technology to low-income countries. I have written elsewhere that proponents of a genetic-engineering solution to hunger make use of idealized conceptions of molecular biology (McAfee 2003c). I contend here that the molecular-technology approach to food security also fails to appreciate crucial differences between the ecological, cultural, institutional, and economic contexts of farming and food systems of most countries in the global South and those of the United States, where most crop genetic engineering has been developed.

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