

Preface

Continuing the Effort

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Since the emergence of agricultural biotechnology as a *bona fide* method for crop improvement, farmers in a growing number of countries have benefited, some to greater extents than others. The vast majority of farmers that have used genetically modified or enhanced crops have realized better yields and increased profits. Simultaneously, there has been reduced use of pesticides and reduced tillage of the land, with concomitant reductions in consumption of petroleum products. The environmental and health benefits that accrue from the use of biotech crops have been documented in many different settings. Nevertheless, biotechnologists, crop scientists, and economists all recognize that biotechnology is only one part of the many components necessary to meet the challenges of sustainable agriculture and food production for the growing world population.

Although the successes of the first generation of biotech crops have been outstanding, the scientific and commercial worlds of agriculture have seen only a glimpse of what could be delivered to the farmer, the consumer, and the environment. Many of us in the plant sciences, agriculture, and environmental sciences anticipate a future agriculture in which pests and pathogens are controlled through genetics and biotechnology with reduced use of agricultural chemicals, a future where drought tolerance in crops reduces the need for irrigation, and a future where crops produce food that is more nutritious and safe from mycotoxins and allergens.

To date, agricultural biotechnology has mostly benefited farmers and consumers in the industrialized countries. It is predicted that by the middle of this century, nine out of ten human beings will reside in the world's developing countries. How can the great promise of this new technology be delivered to these people?

The authors of this volume have focused their reports on technologies that have increased (or promise to increase) agricultural production in developing countries. Readers will learn much about the efforts underway in Asia, Africa, and Latin America, and specifically with regards to the major crop species cultivated within these regions. Some of the writers describe the challenges that must be overcome before genetically enhanced crops will be commercialized in underdeveloped countries. Many of these challenges are the conse-

quence of lack of scientific preparedness; others are the result of misinformation and misinterpretation, leading to confusion and misunderstanding among potential consumers.

It is clear, then, that the work of scientists does not end with discovery or with product development. Instead, it continues through the training of the students and postdoctoral researchers who will become leaders of research teams in developing countries. The work must also continue to communicate effectively with the public and to describe how and why biotechnology will be effective to the needs of farmers and the public at large. As we listen to the questions of the informed and the uninformed, of the concerned and the cynical, we must find ways to ensure that our work is directed towards solutions that are relevant to mankind as a whole. When we succeed in meeting the challenges of increasing the sustainable production of abundant and safe food, perhaps we can begin to feel the satisfaction of a job well done, and of knowing that sound science can, in the end, overcome those who would prefer that the technology fail.