Foreword

This document is the work of a group of Cornell University researchers who began meeting in January 1984, under the aegis of the Ecotoxicology Program, newly initiated by the Institute of Comparative and Environmental Toxicology and the Ecosytems Research Center at Cornell University. This group had several objectives:

- To bring together as much available information as possible on ecological impact assessment of biotechnology products.
- To determine the potential for applying current regulatory practice, law, technological assessment, and ecosystem science to limiting adverse effects of the emerging technology and maximizing positive benefits.
- To ascertain the areas of greatest need for research in developing and carrying out biotechnology impact assessment.
- To present the above in a series of papers to appropriate audiences, both locally and nationally.

This report represents the sum of that group's accomplishments. It was aided immeasurably by the encouragement of Cornell University administrators, especially Dr. Robert Barker, then Vice President for Research (now Provost), and Dr. Theodore Hullar, then Director of the Cornell Agriculture Experiment Station (now Chancellor, University of California at Riverside).

We recognized very early that this subject differed substantially from previous environmental problems, such as those of the "hard" pesticides, hazardous wastes, and energy. Moreover, even during a period of academic fiscal retrenchment, American universities large and small are putting millions of dollars into biotechnology development. Cornell University, for example, will invest at least $45 million from state, private, industrial, and federal sources in the next few years. Many small public and private companies are expanding, stocks have soared, and the hyperbole of expectations is mounting.

Our concerns have not been centered on the issues of pathology and pandemic that surrounded the initial stages of the birth of modern biotechnology in and around Cambridge, Massachusetts. Rather, we are concerned about deliberate environmental releases of exotic or genetically engineered organisms.

This effort should stimulate other, more complete studies of each topic considered in this document. Administrative and legislative innovation will be required to meet the challenges presented by modern biotechnology, and these in turn will require research, analysis, and creativity in synthesizing appropriate approaches to regulation and development of this technology.

February 1985

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