Biotechnology, Agriculture and the Developing World:

The Distributional Implications of Technological Change

Edited by

Timothy Swanson
Chair of Law and Economics, University College London, UK

Technische Universität Darmstadt
Volkswirtschaftliche Bibliothek

Edward Elgar
Cheltenham, UK • Northampton, MA, USA

Contents

List of figures vii
List of tables viii
Acknowledgments x
List of contributors xi

Introduction

1. Biotechnologies and developing countries: how will the anticipated industrial changes in agriculture affect developing countries? 3
Timothy Swanson

Part I Setting the Scene: the Framework for Considering Biotechnology's Impacts

2. Population growth and agricultural intensification in developing countries 25
Nadia Cuffaro

3. The impacts of GURTs: agricultural R&D and appropriation mechanisms 44
Timothy Swanson and Timo Goeschl

4. Agricultural biotechnology and developing countries: proprietary knowledge and diffusion of benefits 67
Charles Spillane

Part II A Case Study on Terminators: the Impacts of Biotechnologies on Benefit Distribution

5. The impact of terminator gene technologies on developing countries: a legal analysis 137
William W. Fisher

6. Impact of terminator technologies in developing countries: a framework for economic analysis 150
C.S. Srinivasan and Colin Thirtle

7. The impact of GURTs on developing countries: a preliminary assessment 177
Timothy Swanson and Timo Goeschl

8. Forecasting the impact of genetic use restriction technologies: a case study on the impact of hybrid crop varieties 198
Timo Goeschl and Timothy Swanson

Part III Biotechnology and Biodiversity: the Impacts of Biotechnologies on Conservation of Genetic Resources

9. Key issues in using molecular techniques to improve conservation and use of plant genetic resources 219
Carmen de Vincente, Toby Hodgkin and Geoffrey Hawtin

10. Biotechnology and traditional breeding in sub-Saharan Africa 230
Vittorio Santaniello

Conclusion

11. Policy options for the biotechnology revolution: what can be done to address the distributional implications of biotechnologies? 249
Timothy Swanson and Timo Goeschl

Index 271