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Stephen R. Gliessman  
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# Agroecology

## Researching the Ecological Basis for Sustainable Agriculture

With 87 Illustrations



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Cover: Diagrammatic representation of a corn/bean/squash intercropping system. Arrows indicate multiplicity of interactions between agroecosystem components and plants. Illustration by Annaliese Miller.

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## Preface

The idea for this book developed when the Third International Congress of Ecology planned for Poland in 1982 had to be cancelled. In the two previous Congresses (1974, 1978), ecological research in agricultural ecosystems had begun to emerge as an important area of activity. I had been asked by Frank Golley, current President of the International Association of Ecology (INTECOL), which organizes the Congress, to plan a symposium on research in agroecology for the 1982 Congress. After the cancellation, I began to organize this book. Interestingly, in 1982 most of the research in this emerging field was taking place in so-called "developing countries" of the tropics. It seemed as if the value of an ecological approach to agriculture had gained early recognition in tropical areas of the world, because of the combined pressures of the tropical environment and the necessity to develop food production systems that depended less on the purchase of costly, usually imported inputs.

Over the next several years, I began to assemble the chapters for this book. When INTECOL held its international congress in Syracuse, New York, in August 1986, several symposia were organized to explore research in agroecology. Updates and new contributors to this book were made possible by these meetings. On the one hand, there was evidence of strong advances continuing to be made in the tropics. In addition, the emerging interest in agroecosystem studies in temperate regions was well represented. Temperate researchers were in the formative stages of de-

veloping a research agenda. Their presentations were conceptual in nature, rather than applied to specific agricultural situations. Their counterparts in the tropics had made considerable progress in applying agroecology to understanding the structure and function of agroecosystems, and in trying to help solve some of the problems that these production systems faced.

Fortunately, these differences recently have been diminished considerably. Agronomists and ecologists, once rarely willing (or able) to work together, have begun to bring their respective strengths and approaches together to address the serious problems that test the ability of our world to sustain its food production systems. Out of this is emerging the field of agroecology. It is hoped that this book, by presenting a series of research cases, will contribute to agroecology by providing an approach to researching the ecological basis of agricultural sustainability.

Many people helped write this book. I am especially indebted to all of the authors, and thank them for their patience and willingness to accept the challenge of showing how research in agroecology is done and why it is important. I also acknowledge the growing number of people now working in agroecological research who are not included here. I am very grateful to Frank Golley for his constant support, well-directed suggestions, and desire to have agroecology achieve broad application. Mark Lipson, Jan Ambrosini, Mary James, John Farrell, Martha Brown, Ana Chou, and Kima Muiretta all played important roles in typing, editing, and completing the preparation of the manuscripts. Annaliese Miller drew the cover illustration. Katherine Noonan at Science Tech did an excellent job of converting the manuscripts into a book. To my colleagues at UCSC in the Board of Environmental Studies and on the staff of the Agroecology Program, I am extremely grateful for their support over the last several years. I am especially thankful for the unconditional support I have received from the group Superglue. Valuable financial assistance was provided by the Alfred Heller Chair in Agroecology, the Columbia Foundation, and the W.K. Kellogg National Fellowship Program.

Stephen R. Gliessman

# Contents

<b>Preface</b>	v
<b>Part 1. Basic Ecological Concepts in Agroecosystems</b>	
<b>1. Agroecology: Researching the Ecological Basis for Sustainable Agriculture</b>	3
STEPHEN R. GLIESSMAN	
<b>2. Two Examples of Natural Enemy Augmentation: A Consequence of Crop Diversification</b>	11
DEBORAH K. LETOURNEAU	
<b>3. An Evaluation of Ants as Possible Candidates for Biological Control in Tropical Annual Agroecosystems</b>	30
C. RONALD CARROLL and STEPHEN RISCH	
<b>4. Cropping Systems, Insect Movement, and the Spread of Insect-Transmitted Diseases in Crops</b>	47
ALISON G. POWER	

- 5. Diversification of Agroecosystems for Insect Pest Regulation: Experiments with Collards** 70  
MIGUEL A. ALTIERI, DAVID L. GLASER, and LINDA L. SCHMIDT
- 6. Reduction of Damping-Off Disease in Soils from Indigenous Mexican Agroecosystems** 83  
R.D. LUMSDEN, R. GARCÍA-E., J.A. LEWIS, and G.A. FRÍAS-T.
- 7. The Role of Allelopathy in Agroecosystems: Studies from Tropical Taiwan** 104  
CHANG-HUNG CHOU
- 8. Nutrient Mobility in a Shifting Cultivation System, Belize, Central America** 122  
J.D.H. LAMBERT, D. BRUBACHER, and J.T. ARNASON
- 9. Low-Input Ideotypes** 130  
M.J.J. JANSSENS, I.F. NEUMANN, and L. FROIDEVAUX
- 10. An Ecological Approach to Reducing External Inputs Through the Use of Intercropping** 146  
M.F. AMADOR and STEPHEN R. GLIESSMAN
- 11. Integrating Trees into Agriculture: The Home Garden Agroecosystem as an Example of Agroforestry in the Tropics** 160  
STEPHEN R. GLIESSMAN
- 12. The Influence of Trees in Selected Agroecosystems in Mexico** 169  
JOHN FARRELL
- 13. Tree Improvement from the Ground Up: The Potential for a Select Microbial Inocula in Forestry** 184  
TIM WOOD and WM. HUGH BOLLINGER
- 14. Variability, Stability, and Risk in Intercropping: Some Theoretical Explorations** 205  
JOHN VANDERMEER and BRIAN SCHULTZ



**Part 2. Agroecosystem Design and Management**

- 15. Reducing the Risk: Some Indications Regarding Pre-Hispanic Wetland Agricultural Intensification from Contemporary Use of a Wetland/Terra Firma Boundary Zone in Central Veracruz** 233  
ALFRED H. SIEMENS
- 16. Agricultural Systems of the Northeastern Hill Region of India** 251  
P.S. RAMAKRISHNAN
- 17. The Impact of Agrohydrological Management on Water, Nutrients, and Fertilizers in the Environment of the Netherlands** 275  
J.G. DE MOLENAAR
- 18. Technological Changes in Energy Use in U.S. Agricultural Production** 305  
DAVID PIMENTEL, WEN DAZHONG, and MARIO GIAMPIETRO
- 19. Energy Flow in Agroecosystems of Northeast China** 322  
WEN DAZHONG and DAVID PIMENTEL
- 20. Threats to Sustainability in Intensified Agricultural Systems: Analysis and Implications for Management** 337  
B.R. TRENBATH, G.R. CONWAY, and I.A. CRAIG
- 21. Quantifying the Agroecological Component of Sustainable Agriculture: A Goal** 367  
STEPHEN R. GLIESSMAN
- Index** 371

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