How to Build Better Agricultural Conservation Programs to Protect Water Quality:
The National Institute of Food and Agriculture—Conservation Effects Assessment Project Experience

Edited by Deanna L. Osmond, Donald W. Meals, Dana LK. Hoag, and Mazdak Arabi

Soil and Water Conservation Society
Ankeny, Iowa
How to build better agricultural conservation programs to protect water quality: the National Institute of Food and Agriculture, Conservation Effects Assessment Project experience / edited by Deanna L. Osmond ... [et al.].

p. cm.
ISBN 978-0-9769432-9-7 (hardcover)
S604.6.H69 2012
631.4’5--dc23
2012020629

Cover photos: Upper left—Cannonsville Reservoir, New York, photo by Deanna L. Osmond, North Carolina State University, Raleigh, North Carolina; Upper right—Riparian buffer, Eagle Creek Watershed, Indiana, photo by Donald W. Meals, IceNine Environmental Consulting, Burlington, Vermont; Lower half—Three-dimensional aerial view of the Cheney Lake Watershed and Reservoir, Kansas, image by Robert Austin, North Carolina State University, Raleigh, North Carolina.

The Soil and Water Conservation Society is a nonprofit scientific and professional organization that fosters the science and art of natural resource management to achieve sustainability. The Society’s members promote and practice an ethic that recognizes the interdependence of people and their environment.
Table of Contents

Preface .................................................................................................................................................. v
Acknowledgements ........................................................................................................................... vii

Part I. Synthesis of Lessons Learned from the National Institute of Food and Agriculture–Conservation Effects Assessment Project and Recommendations for Future Programs

Chapter 1. Introduction and Approach to Synthesis of Lessons Learned: National Institute of Food and Agriculture–Conservation Effects Assessment Project ................................................................. 3

Chapter 2. Key Informant Survey to Understand What Farmers, Agency Personnel, and Stakeholders Think: National Institute of Food and Agriculture–Conservation Effects Assessment Project ...................................................................................................................... 12

Chapter 3. Conservation Practice Implementation and Maintenance: National Institute of Food and Agriculture–Conservation Effects Assessment Project ........................................................................... 36

Chapter 4. Water Quality Monitoring: National Institute of Food and Agriculture–Conservation Effects Assessment Project .......................................................................................................................... 58

Chapter 5. Watershed Modeling: National Institute of Food and Agriculture–Conservation Effects Assessment Project .......................................................................................................................... 84
M. Arabi, D.W. Meals, and D.LK. Hoag

Chapter 6. Socioeconomic Analysis: National Institute of Food and Agriculture–Conservation Effects Assessment Project ...................................................................................................................... 120
D.LK. Hoag, A.E. Luloff, and D.L. Osmond

Chapter 7. Outreach Education and Technical Assistance: National Institute of Food and Agriculture–Conservation Effects Assessment Project .................................................................................. 138

Chapter 8. Synthesizing the Experience of the 13 National Institute of Food and Agriculture–Conservation Effects Assessment Project Watershed Studies: Present and Future ............. 151

Part II. National Institute of Food and Agriculture–Conservation Effects Assessment Project Overviews

Chapter 9. Lincoln Lake Watershed, Arkansas: National Institute of Food and Agriculture–Conservation Effects Assessment Project ........................................................................................................... 171

(c) SWCS. For Individual Use Only
Chapter 10. Little River Experimental Watershed, Georgia: National Institute of Food and Agriculture–Conservation Effects Assessment Project


Chapter 11. Walnut Creek and Squaw Creek Watersheds, Iowa: National Institute of Food and Agriculture–Conservation Effects Assessment Project


Chapter 12. Paradise Creek Watershed, Idaho: National Institute of Food and Agriculture–Conservation Effects Assessment Project

D.L. Osmond, J. Boll, E.S. Brooks, J.D. Wulfhorst, R. Mahler, L.W. Van Tassell, M. Arabi, and D.LK. Hoag

Chapter 13. Eagle Creek Watershed, Indiana: National Institute of Food and Agriculture–Conservation Effects Assessment Project


Chapter 14. Cheney Lake Watershed, Kansas: National Institute of Food and Agriculture–Conservation Effects Assessment Project


Chapter 15. Goodwater Creek Watershed, Missouri: National Institute of Food and Agriculture–Conservation Effects Assessment Project


Chapter 16. Groundwater beneath a Phase III Management Area in the Central Platte Natural Resources District, Nebraska: National Institute of Food and Agriculture–Conservation Effects Assessment Project


Chapter 17. Cannonsville Reservoir, New York: National Institute of Food and Agriculture–Conservation Effects Assessment Project

D.L. Osmond, D.W. Meals, M. Arabi, and D.LK. Hoag

Chapter 18. Rock Creek Watershed, Ohio: National Institute of Food and Agriculture–Conservation Effects Assessment Project


Chapter 19. Calapooia Watershed, Oregon: National Institute of Food and Agriculture–Conservation Effects Assessment Project


Chapter 20. Spring Creek Watershed, Pennsylvania: National Institute of Food and Agriculture–Conservation Effects Assessment Project


Chapter 21. Little Bear River Watershed, Utah: National Institute of Food and Agriculture–Conservation Effects Assessment Project


Authors

Index