

## PREFACE

In 2004, as an adjunct to the Conservation Effects Assessment Project (CEAP), U.S. Department of Agriculture officials asked the staff of the Soil and Water Conservation Society to undertake a comprehensive literature review as a means of documenting the environmental effects of incorporating conservation practices into agricultural operations. The prime objective of this effort was to construct a scientific foundation for the CEAP initiative by documenting what we know and don't know about the environmental effects of putting conservation practices on the land. Through CEAP, departmental officials hope to quantify the environmental benefits of conservation efforts more rigorously than in the past.

The first phase of the work by Society staff was to focus on what effects conservation practices applied to cropland might have with regard to four environmental outcomes: water quality, soil quality, water conservation, and air quality. The Wildlife Society simultaneously undertook an assessment of cropland conservation practice effects on fish and wildlife habitat. Subsequent assessments were to look at practice effects on grazing land, wetlands, and other land uses.

A decision was made to divide the assessment into five basic conservation systems—soil management, water management, nutrient management, pest management, and landscape management—then subdivide each of those conservation systems into two basic cropping systems—rain-fed cropland and irrigated cropland.

A lead author was then selected for each chapter—based on the demonstrated capability and expertise of that individual to deal with the assigned subject matter. Each lead author was given the discretion to recruit co-authors.

Authors were asked to undertake a comprehensive literature search and summarize, in an integrated fashion, what is known and not known about the following five elements:

- Positive and/or negative environmental effects on water quality, soil quality, water conservation, and air quality, in that order.
- Interactions and potential tradeoffs among conservation practices, systems, and environmental outcomes.
- Key factors driving the magnitude and direction of environmental effects, interactions, and tradeoffs.
- The degree of confidence that could be accorded the documented environmental effects.
- Critical gaps in knowledge that called for additional research.

To achieve some consistency among chapters, authors were given a standardized outline to follow.

A workshop, held in January 2005 to review and critique initial drafts of chapters, involved authors and peer reviewers (who also reviewed subsequent manuscript drafts). At that workshop, participants opted to forego the rain-fed versus irrigated cropping system division except in the case of the chapters on water management practices. Their rationale was simply that too much duplication would be introduced into the various chapters if the division were retained. A later decision to split the pest management practices chapter into two chapters—pesticide mitigation and integrated pest management—was based on unrelated factors, including a change in authors.

Workshop participants also agreed on a “division of labor” among the chapters with respect to the conservation practices covered (see list on page x). All conservation practices commonly applied to cropland and for which the Natural Resources Conservation Service had established a national standard were divided among the five subject areas—soil management practices, water management practices, nutrient management practices, pest management practices, and landscape management practices. A few practices were placed in multiple chapters because authors felt compelled to cover those practices to achieve the degree of comprehensiveness requested. Authors also were allowed to add to the list practices for which no national standard exists to accommodate innovation and new technologies.

The project proved to be a real challenge for authors, reviewers, and editors. Literature searches proved especially difficult, in part because of the volume of published information available on certain conservation practices and in part because of the lack of published research on other practices. Also difficult was the location of so-called “gray” literature—those extension bulletins, technical notes, and other materials regularly issued by agencies and academic institutions. In the end, much of that material was ignored.

So, for what it is worth, here is the final product of this ambitious undertaking. Shortcomings likely are obvious. At the same time, project participants pulled together an enormous amount of material relating to the environmental effects of putting conservation practices on cropland, material that should prove useful to conservation policymakers and practitioners alike.

Society staff members thank the authors and reviewers for their significant contributions to this effort. Thanks also are due officials of the U.S. Department of Agriculture's Agricultural Research Service and Natural Resources Conservation Service who supported the effort financially and otherwise.

— *Max Schnepf*

