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Management Goals and Management Practices:

Practices for Reducing Nonpoint Source Pollution from Irrigated Agriculture

MARY BIANCHI is UC Cooperative Extension Farm Advisor, San Luis Obispo County; **JOHN HARPER** is UCCE County Director and Livestock and Natural Resources Advisor, Mendocino County; and **KENNETH W. TATE** is UCCE Rangeland Watershed Specialist, UC Davis.

UNIVERSITY OF CALIFORNIA
Division of Agriculture and Natural Resources
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This FACT SHEET is part of the **Farm Water Quality Planning (FWQP)** series, developed for a short course that provides training for growers of irrigated crops who are interested in implementing water quality protection practices. The short course teaches the basic concepts of watersheds, nonpoint source pollution (NPS), self-assessment techniques, and evaluation techniques. Management goals and practices are presented for a variety of cropping systems.

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A Management Goal (MG) is the best economically achievable technology or process for limiting nonpoint source pollution of ground or surface waters from agricultural operations. Management Goals are general; for example, "Base the amount and timing of N fertilizer applied on crop needs." A grower should implement every water quality Management Goal that is relevant to his or her farm.

A Management Practice (MP) is a specific practice for accomplishing the Management Goal; for example, "Use plant tissue analysis to aid in fertilization decisions for vegetable production." Growers and crop advisors have found these practices to be suitable for vegetable production in California's coastal region. Management Practices are sometimes referred to as *recommended practices*. They are not requirements and are neither feasible nor necessary for pollution control in every situation. Rather, they are options for efficient management of nitrogen fertilizer and water.

Sometimes growers combine Management Measures with Management Practices under the term *Best Management Practice* (BMP). Defined in the Federal Clean Water Act of 1987, a BMP is "a practice or combination of practices that is determined by a state to be the most effective means of preventing or reducing the amount of pollution generated by nonpoint sources to a level compatible with water quality goals." The term "best" is subject to interpretation and point of view. In recognition of this, the Coastal Zone Reauthorization Amendment substituted the terms *Management Measures* and *Management Practices*.

HOW ARE MANAGEMENT PRACTICES DEVELOPED?

Growers. Many of the production practices currently used by growers and farm managers are recognized as water quality Management Practices and need to be documented as such. Water quality Management Practices should be planned and implemented just like any other business decision on a farm. Management Practices must be technically and economically feasible.

Researchers and professionals. Management Practices are designed by researchers, technical advisors, and farm management professionals using the most technically sound research and management information available. As technological, environmental, or financial conditions change, Management Practices should be updated to reflect those changes.

Field Office Technical Guides. The Natural Resources Conservation Service has conducted a program of voluntary soil and water conservation planning with private landowners and resource managers for over 50 years. The NRCS relies upon a technical guide localized to the geographic area of a field office and a National Planning Manual as guides for technical assistance. The Field Office Technical Guides may be revised as needs and techniques change.

Regional Water Quality Control Boards. The State and Regional Water Quality Control Boards are responsible for implementing Federal and State laws and regulations pertaining to water quality, including the Clean Water Act and Coastal Zone Act Reauthorization Amendments and the state's Porter-Cologne Water Quality Control Act. These laws give the regional boards very broad authority to protect all waters of the state, including both surface water and ground water, and to control both point source and nonpoint source pollution. Although the regional boards prefer to work with landowners and managers to ensure voluntary, self-determined implementation of management practices, in some cases they may issue waste discharge requirements that include conditions requiring the implementation of a particular Management Practice as the only practical means of compliance. They may accept the practices in the NRCS Field Office Technical Guides or they may require Management Practices unique to the situation.

HOW ARE MANAGEMENT PRACTICES IMPLEMENTED?

Growers may seek technical assistance from UC Cooperative Extension, USDA Natural Resources Conservation Service, Resource Conservation Districts, or other agencies to help identify water quality problems, develop management goals, and select management practices. The amount or extent to which a practice is applied must be consistent with national, state, and basin water quality goals, and should reflect the relative contribution of that type of land use activity toward water quality problems within the basin. This technical assistance will result in a plan, typically known as a *farm plan* or *conservation plan.* Because writing a farm plan is the landowner's first tangible step in voluntarily reducing nonpoint pollution sources, farm planning is listed as the first Management Practice in the next section.

MANAGEMENT PRACTICES FOR CALIFORNIA FARMS

You will find Management Practices for irrigated agriculture in the fact sheets that follow. Since the Farm Plan is the grower's first tangible step in voluntary compliance, however, we will first review the steps towards developing a Farm Plan.

Farm Plan

The goal of maintaining or improving the quality of water should be included in farm management plans for crop production. Farm water quality goals need to be linked to water quality problems *(impaired beneficial uses)* identified by the Regional Water Quality Control Boards for the local basin or sub-basin. Farm plans may follow any of a number of formats:

- Natural Resources Conservation Service Conservation Planning
- UCCE Farm Water Quality Planning
- any organized planning process conducted by the landowners, agencies, or private consultants

Farm Plan contents:

- description of the environmental setting
- description of the crop production operation
- list of farm water quality goals
- self-assessment of impacts to water quality from farming operations
- account of management goals and practices
- description of evaluation techniques

REFERENCE

Rangeland watershed program water quality fact sheet No. 9: Management measures and practices. July 1996. (Information prepared and edited by John Harper, UCCE County Director and Livestock and Natural Resources Advisor, Mendocino County; Melvin George, Range and Pasture Specialist, Agronomy and Range Science, UC Davis; and Kenneth W. Tate, UCCE Rangeland Watershed Specialist, UC Davis.)

FOR MORE INFORMATION

You'll find detailed information on many aspects of field crop production and resource conservation in these titles and in other publications, slide sets, CD-ROMs, and videos from UC ANR:

Nutrients and Water Quality, slide set 90/104
Protecting Groundwater Quality in Citrus Production, publication 21521
Sediments and Water Quality, slide set 91/102

To order these products, visit our online catalog at http://anrcatalog.ucdavis.edu. You can also place orders by mail, phone, or fax, or request a printed catalog of publications, slide sets, CD-ROMs, and videos from

University of California
Agriculture and Natural Resources
Communication Services
6701 San Pablo Avenue, 2nd Floor
Oakland, California 94608-1239

Telephone: (800) 994-8849 or (510) 642-2431
FAX: (510) 643-5470
E-mail inquiries: danrcs@ucdavis.edu

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