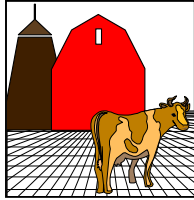


NPS/CZARA FACT SHEET No. 1
Agriculture Management Measures



The SWRCB, CCC, and other State agencies have identified seven management measures (MMs) to address agricultural nonpoint sources of pollution that affect State waters. The agricultural MMs include practices and plans installed under various NPS programs in California, including systems of

practices commonly used and recommended by the U.S. Department of Agriculture (USDA) as components of Resource Management Systems, Water Quality Management Plans and Agricultural Waste Management Systems.

According to the USEPA (1993), agriculture contributes more than half of the pollution entering the Nation's waterbodies; recent studies have identified it as the greatest source of water pollution in the United States. The primary agricultural NPS pollutants are nutrients, sediment, animal wastes, pesticides, and salts. Agricultural activities may also affect habitat through physical disturbances caused by livestock or equipment, or through the management of water.

NPS/CZARA management measures to address agricultural sources of nonpoint pollution in California:

- 1A. Erosion and Sediment Control**
- 1B. Facility Wastewater and Runoff from Confined Animal Facilities**
- 1C. Nutrient Management**
- 1D. Pesticide Management**
- 1E. Grazing Management**
- 1F. Irrigation Water Management**
- 1G. Education/Outreach**

Management Measures:

Erosion and Sediment Control. MM 1A addresses NPS problems associated with soil erosion and sedimentation. Where erosion and sedimentation from agricultural lands affects coastal waters, landowners shall design and install a combination of practices to remove solids and associated pollutants in runoff during all but the larger storms. Alternatively, landowners may apply the erosion component of a Conservation Management System (CMS) as defined in the USDA Field Office Technical Guide.

Facility Wastewater and Runoff from Confined Animal Facilities. Pursuant to MM 1B, facility wastewater and contaminated runoff from confined animal facilities must be contained at all times. Storage facilities should be of adequate capacity to allow for proper waste water use and should be constructed so they prevent seepage to ground water, and stored runoff and accumulated solids from the facility shall be managed through a waste use system that is consistent with MM 1C.

Nutrient Management. MM 1C addresses the development and implementation of comprehensive nutrient management plans for areas where nutrient runoff is a problem affecting coastal waters. Such plans would include a crop nutrient budget; identification of the types, amounts and timing of nutrients necessary to produce a crop based on realistic crop yield expectations;

identification of hazards to the site and adjacent environment; soil sampling and tests to determine crop nutrient needs; and proper calibration of nutrient equipment. When manure from confined animal facilities is to be used as a soil amendment and/or is disposed of on land, the plan shall discuss steps to assure that subsequent irrigation of that land does not leach excess nutrients to surface or ground water.

Pesticide Management. Implementation of MM 1D is intended to reduce contamination of surface water and ground water from pesticides. Elements of this measure include reductions in pesticide use; evaluation of pest, crop and field factors; use of Integrated Pest Management (IPM); consideration of environmental impacts in choice of pesticides; calibration of equipment; and use of anti-backflow devices. IPM is a key component of pest control. IPM strategies include evaluating pest problems in relation to cropping history and previous pest control measures, and applying pesticides only when an economic benefit will be achieved. Pesticides should be selected based on their effectiveness to control target pests and environmental impacts such as their persistence, toxicity, and leaching potential.

Grazing Management. MM 1E is intended to protect sensitive areas (including streambanks, lakes, wetlands, estuaries, and riparian zones) by reducing direct loadings of animal wastes and sediment. Upland erosion can be reduced by, among other methods: (1) maintaining the land consistent with the California Rangeland Water Quality Management Plan or Bureau of Land Management and Forest Service activity plans or (2) applying the range and pasture components of a Conservation Management System. This may include restricting livestock from sensitive areas by providing livestock stream crossings and by locating salt, shade, and alternative drinking sources away from sensitive areas.

Irrigation Water Management. MM 1F promotes effective irrigation while reducing pollutant delivery to surface and ground waters. Pursuant to this measure, irrigation water would be applied uniformly based on an accurate measurement of cropwater needs and the volume of irrigation water applied, considering limitations raised by such issues as water rights, pollutant concentrations, water delivery restrictions, salt control, wetland, water supply and frost/freezing temperature management. Additional precautions would apply when chemicals are applied through irrigation.

Education/Outreach. The goals of MM 1G are to implement pollution prevention and education programs to reduce NPS pollutants generated from the following activities where applicable:

- a. Activities that cause erosion and loss of sediment on agricultural land and land that is converted from other land uses to agricultural land;
- b. Activities that cause discharge from confined animal facilities to surface waters;
- c. Activities that cause excess delivery of nutrients and/or leaching of nutrients;
- d. Activities that cause contamination of surface water and ground water from pesticides;
- e. Grazing activities that cause physical disturbance to sensitive areas and the discharge of sediment, animal waste, nutrients, and chemicals to surface waters;
- f. Irrigation activities that cause NPS pollution of surface waters.