
Appendixes

Major Federal Programs and Activities Related to Water Quality and Agriculture

U.S. Department of Agriculture

1985 Food Security Act Provisions

Conservation Reserve Program (CRP) provides annual rental payments to land owners and operators who voluntarily retire highly erodible and other environmentally critical lands from production for 10 years. It also provides technical assistance and cost-sharing payments of up to 50 percent of the cost of establishing a soil-conserving cover on retired land. Rental payments to any person may not exceed \$50,000 per year. County enrollment is limited to no more than 25 percent of cropland, unless USDA grants a special waiver. To date, approximately 30 million acres of cropland have been enrolled.

Conservation Compliance requires that farmers who produce agricultural commodities on highly erodible cropland have approved conservation plans by Jan. 1, 1990, and finish implementing them by Jan. 1, 1995, or lose eligibility for USDA program benefits.

Sodbuster provisions require that farmers who convert highly erodible land to agricultural commodity production do so under an approved conservation system, or forfeit eligibility for USDA program benefits,

Swampbuster provisions bar farmers who convert wetlands to agricultural commodity production from eligibility for USDA program benefits, unless USDA determines that conversion would have only a minimal effect on wetland hydrology and biology.

Continuing Assistance Programs

Agricultural Conservation Program (ACP) provides financial assistance through the Agricultural Stabilization and Conservation Service (ASCS) to farmers for implementing approved soil and water conservation and pollution abatement practices. Cost-sharing payments to a given farmer may not exceed \$3,500 per year on 1-year agreements, and may not average over \$3,500 per year on multi-year agreements. Except for Water Quality Special Projects, conservation priorities are set by States and counties based on local soil and water quality problems. Program initiated in 1936. ASCS also administers the Integrated Crop Management (ICM) program, a pilot ACP project to improve agrichemical management through cost-share assistance for crop advisory and soil testing services. Program initiated in 1990.

Conservation Technical Assistance (CTA) provides technical assistance by the Soil Conservation Service

(SCS) through Conservation Districts to farmers for planning and implementing soil and water conservation and water quality improvement practices. Program initiated in 1936.

Great Plains Conservation Program (GPCP) provides technical and financial assistance in Great Plains States to farmers and ranchers who implement total conservation treatment of their entire operation. Cost-sharing assistance is limited to \$35,000 per farmer contract. Program initiated in 1957.

Small Watershed Program provides Federal technical and financial help to local organizations for flood prevention, watershed protection, and water management. Program initiated in 1954.

Resource Conservation and Development Program assists multicounty areas to enhance conservation, water quality, wildlife habitat and recreation, and rural development. Program initiated in 1962.

Emergency Conservation Program provides financial assistance to farmers in rehabilitating cropland damaged by natural disasters. Program initiated in 1978.

Rural Clean Water Program is an experimental program implemented in 21 selected projects. It provides cost-sharing and technical assistance to farmers voluntarily implementing best management practices to improve water quality. Cost-sharing is limited to \$50,000 per farm. Program initiated in 1980; ends in 1995.

Forestry Incentives Program provides cost-sharing of up to 65 percent for tree planning and timber stand improvement for private forest lands of 1,000 acres or less.

Water Bank Program provides annual payments for preserving wetlands in important migratory waterfowl nesting, breeding, or feeding areas. program initiated in 1970.

Extension Service provides information and recommendations on soil and water quality practices to land owners and operators, in cooperation with SCS and Conservation Districts.

Farmers Home Administration provides loans to farmers and associations of farmers for soil and water conservation, pollution abatement, and building or improving water systems that serve several farms. It may acquire 50-year conservation easements to help farmers reduce loan payments.

National Agriculture Library collects and distributes information on all aspects of U.S. agriculture, and has received special funding to develop a new information program on agriculture and water quality.

Research Programs

Agricultural Research Service conducts research on new and alternative crops and agricultural technology to reduce agriculture's adverse impacts on soil and water.

Cooperative State Research Service coordinates conservation and water quality research conducted by State Agricultural Experiment Stations and land-grant universities. This agency allocates and administers funds appropriated for special and competitive grants for water quality research.

Economic Research Service estimates economic impacts of existing and alternative policies, programs, and technology for preserving and improving soil and water quality. With National Agricultural Statistics Service, collects data on farm chemical use, agricultural practices, and costs and returns.

Forest Service conducts research on environmental and economic impacts of alternative forest management policies, programs, and practices.

Environmental Protection Agency

FIFRA Pesticide Programs

The Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) gives EPA responsibilities for registering new pesticides and for reviewing and re-registering existing pesticides to ensure that, when used according to label directions, they will not present unreasonable risks to human health or the environment. Under FIFRA provisions, EPA may restrict or cancel use of any pesticide determined to be a potential hazard to human health or the environment.

National Survey of Pesticides in Drinking Water Wells

The National Survey is underway to determine the presence and concentration of 127 commonly used agricultural chemicals in 1,350 statistically selected wells in all States. Water samples were analyzed and questionnaires filled out by well owners, operators, and local area experts on well construction and locale, and cropping and pesticide use patterns. EPA expects to issue a draft report on the survey in early 1991.

Safe Drinking Water Act Programs

The Safe Drinking Water Act (SDWA) requires EPA to publish *maximum contaminant levels* (MCLs) for any contaminants, including pesticides, which may have adverse health effects in public water systems (those

serving over 25 persons or with 15 connections). Standards established by EPA under the SDWA are also being used as guidelines to assess contamination of ground water in private wells. The EPA also sets nonregulatory health advisory levels on contaminants for which MCLs have not been established.

The SDWA also established a *Wellhead Protection Program* to protect wells and wellfields that contribute drinking water to public supply systems. Each State must prepare and submit to EPA a Wellhead Protection program delineating the recharge areas around public water, identifying potential sources of groundwater contamination within these areas, and addressing identified potential sources to protect the public water supply. Although funds have been appropriated for the WHP Program, the EPA Administrator testified to the Senate that only 30 States have submitted proposed programs for review and approval by EPA.

1987 Water Quality Act Nonpoint Programs

Section 319 of the Act requires States and Territories to file assessment reports with EPA identifying navigable waters where water quality standards cannot be attained or maintained without reducing nonpoint source pollution. States must also file management programs with EPA identifying steps which will be taken to reduce nonpoint pollution in those waters identified in the State assessment reports. The Act authorizes up to \$400 million total in Federal funding for implementing the programs. To date, 43 States and Territories have submitted nonpoint-source pollution assessments to EPA, and 36 have submitted final management programs.

1987 Water Quality Act Clean Lakes Program

Section 314 of the Act requires States to submit assessment reports on the status and trends of lake water quality, including the nature and extent of pollution loading from point and nonpoint sources. Also, methods to control pollution and to protect/restore the quality of lakes impaired or threatened by pollution must be described.

Financial assistance is given to States to prepare assessment reports and to implement watershed improvements, as well as to conduct in-lake restoration activities. Several USDA small watershed projects (PL-566) have been coordinated with Clean Lakes projects.

1987 Water Quality Act National Estuary Program

Section 320 of the Act provides for identification of nationally significant estuaries threatened by pollution, preparation of conservation and management plans, and Federal grants to prepare the plans. Twelve major estuaries have planning underway.

Near Coastal Waters Strategy

Through its Near Coastal Waters Strategy, EPA is integrating its water quality programs to target priority programs and prevent pollution in near coastal waters. This includes the implementation of nonpoint source management programs in coastal counties and will, in several cases, encompass accelerated implementation of agricultural conservation programs.

Regional Water Quality Programs

The EPA and other Federal agencies are cooperating on several regional programs to reduce nonpoint source pollution, including the Chesapeake Bay Program, the Colorado River Salinity Control program, the Great Lakes Program, the Gulf of Mexico Program, and the Land and Water 201 Program in the Tennessee Valley Region.

U.S. Geological Survey

The U.S. Geological Survey is engaged in a broad array of information collection, information management, and research projects pertinent to groundwater management and protection.

Coordination and Dissemination of Federal Information on Groundwater

The USGS releases a comprehensive report on water resources annually: the National Water Summary. This report includes comprehensive documentation on water resource quantity and quality for each State, and includes case studies of nonpoint source contamination. It also summarizes studies on managing and coordinating Federal and State water protection efforts. USGS also maintains a computerized National Water Storage and Retrieval System (WATSTORE) and a computer-based National Water Data Exchange (NAWDEX).

National Water Quality Assessment Program

Since 1986 the NAWQA program has conducted assessments of national and regional status of groundwater resources and monitors trends in factors that can affect groundwater quality. Agrichemical nonpoint source contamination problems are under study in seven pilot projects.

Regional Aquifer Systems Analysis Program

The RASA program was established in 1978 to gather data on the quantity of water resources available in the nation's aquifers. RASA's objectives for each aquifer system study are to determine the availability and chemical quality of stored water and discharge-recharge characteristics, and to develop computer simulation models that may assist in understanding the groundwater flow regime and changes brought about by human

activities. Twenty-eight aquifer systems have been identified for study; fourteen of which have been completed.

Federal-State Cooperative Program

USGS supports local efforts to collect data on ground and surface waters through cost-sharing arrangements with State and local governments. For example, USGS has provided support for mapping State aquifers, for monitoring pesticide contamination problems, and has assisted in developing wellhead protection programs.

Toxic Substances Hydrology Program

Under the TSHP, USGS conducts research on transport and fate of groundwater contaminants to develop information on means to improve waste disposal practices and mitigate contamination problems.

State Water Resources Research Institutes

Under this program USGS provides grants to 54 State and Territory Water Resources Institutes for research, information dissemination, and for training students in water resources fields. Approximately 35 percent of the Institutes' work is related to groundwater protection. Reauthorization of the Institutes has been hindered by their incorporation in broad and controversial groundwater protection bills.

Mid-Continent Initiative

USGS also is working in cooperation with the USDA's Midwest Initiative on a "Mid-Continent Initiative," a 5-to 10-year research program characterizing the environmental fate of the widely-used agricultural herbicide atrazine. The area under study, roughly bounded by the Upper Missouri and Ohio River Basins, was chosen largely because of the coincidence of hydrologic boundaries with a region of intensive agrichemical-use cropland.

National Fertilizer & Environmental Research Center (TVA)

NFERC adopted a new mission along with a new name in 1990 (originally it was titled the National Fertilizer Development Center). Over its nearly 60 year history, the Center has served as a national laboratory for fertilizer research and demonstration. As many as 75 percent of fertilizer formulations and manufacturing processes used today are based on technology originating at the Center. The new mission expands NFERC's national role in agriculturally related environmental issues.

Fertilizer and other Agricultural Chemicals

Research, development, and commercialization of improved fertilizer technologies and agronomic research on nutrient use efficiency will continue to be a core effort for NFERC. However, a new emphasis has been placed on environmental protection in development and manage-

ment. For example, research on fertilizer interrelationships with other agricultural chemicals is planned.

Renewable Fuel and Chemical Technologies

Biotechnology and bioconversion technology research is planned for production of ethanol and other chemicals from cellulose and agricultural waste materials.

Environmental/Waste Management

Initial efforts will be aimed at helping fertilizer dealers meet environmental regulations. Research, development, and demonstration will focus on degradation of pesticides and other contaminants, recycling and reuse of agricultural and other wastes, and related technologies. For example, NFERC is exploring the use of constructed wetlands to treat chemical wastes from fertilizer dealerships.

Education and Demonstration

NFERC is closely allied with the fertilizer manufacturing industry and dealers through its National Field Program, and with agricultural universities and other organizations through its Test-Demonstration Program. The programs are supervised by area directors distributed throughout the continental States, who work with cooperating dealers and distributors in planning fertilizer introduction, providing information on use, and supplying technical assistance (e.g., computer software to help dealers offer least-cost formulations and match fertilizer treatments with soil test recommendations). NFERC personnel also conduct Improved Management Practices for Dealers and Site Remediation projects for small fertilizer dealerships across the country. In addition, NFERC personnel participate in State fertilizer education programs, and conduct regional and national seminars and demonstrations.

Selected State Programs

States increasingly are enacting innovative and sometimes stringent environmental laws. These are 'having an indirect impact on Federal policy as States put pressure on the Federal Government to take similar action or as industry goes to Congress in search of uniform Federal laws to replace the patchwork of conflicting State requirements.'¹

Ground Water Quality Protection Programs

Twenty-two States have developed comprehensive programs to protect or improve groundwater quality. Most include one or more common program elements: 1) classification, assessment, and mapping of groundwater sources; 2) groundwater quality standards, 3) groundwater quality monitoring; 4) control of farming practices;

5) control of land uses; 6) economic incentives; and 7) education programs. Specific examples include:

- *Iowa's Ground Water Protection uses pesticide registration fees and fertilizer taxes to finance sustainable agriculture research and demonstration activities.*
- *Massachusetts Wellhead Protection Program established land use control and restricts pesticide use in critical recharge areas around wells; and*
- *Wisconsin's Risk Assessment Program based on numerical groundwater standards.*

Best Management Practices (USDA/ERS)

Thirty-six States provide financial or regulatory incentives for installing and maintaining best management practices (BMPs) to promote soil conservation and protect surface water quality.

- *Financial incentives* include: cost-sharing programs (26 States); income or property tax credits or deductions (7 States), no- or low-interest loans (5 States); and purchasing conservation easements or development rights in agricultural lands (3 States).
- *Approved plans or permits for activities that could cause soil erosion or pollution discharges into waterways, or compliance with established permissible soil-loss limits are required in 17 States. Ten States give farmers cost-sharing assistance specifically to help them meet the requirements.*

Innovative State Financing Mechanisms

States will face competing demands for funding of groundwater, drinking water, and surface water programs in the coming decade, potentially requiring many to develop alternative funding mechanisms. Some States already have created innovative financing mechanisms, including: 1) user and impact development fees; 2) dedicated tax revenue; 3) State revolving loan funds; and 4) special water quality districts and utilities.

- *Iowa's Groundwater Protection Fund, established under the 1987 Groundwater Protection Act, is capitalized by user and producer fees on pesticides, fertilizers, and other products contributing to non-point source pollution.*
- *The Minnesota Environmental Trust Fund is capitalized with one-half of the proceeds from the State lottery. The fund is expected to reach \$100 to \$200 million by the end of 1993.*
- *A Washington State sales tax on cigarettes at \$0.08 per pack finances water pollution control programs. Half of the funds are designated for wastewater treatment; 20 percent for groundwater protection; and 10 percent each for nonpoint source pollution, lake management, and discretionary purposes.*

¹M.E. Kriz, "Ahead of the Feds," *National Journal*, Dec. 19, 1989, pp 2989-2993.