6.1 Programs Overview and Expenditures

USDA programs account for over half of total Federal expenditures on conservation and environmental efforts affecting agriculture. Land rental and easement payments have greatly increased USDA's spending on conservation, and have been the largest component of that spending since 1988. Various non-USDA Federal and State programs affect resource use in agriculture.

USDA spent an estimated $3.5 billion on resource conservation and other environmental activities in FY1994 (table 6.1.1). This represents over half of all Federal expenditures on resource efforts affecting agriculture, estimated to be around $6.5 billion in FY1994. Other major Federal players are the U.S. Department of the Interior (USDI), the U.S. Army Corps of Engineers (Corps), and the U.S. Environmental Protection Agency (EPA). USDI and Corps programs affecting agriculture deal primarily with water conservation and management, including irrigation, flood control, and wetlands. EPA administers programs dealing with surface water quality, drinking water and groundwater protection, and use of pesticides.

Programs administered at State and local levels also affect agriculture. All States support technical assistance for conservation and water quality through conservation or natural resource districts located at the county or multi-county level. In FY1994, such support was $502 million, down from a record $533 million in FY1993. In addition, 30 States provide various incentives for farmers to utilize soil and water conservation and water quality practices. States and localities also provide support for cooperative regional water quality or estuary programs.

USDA Uses Six Broad Approaches To Achieve Conservation Goals

USDA's conservation and water quality programs utilize one or more of the following approaches (table 6.1.2):

- Technical assistance and education,
- Cost-sharing assistance and incentives for practice installation,
- Public works project activities,
- Rental and easement payments to take cropland out of production and place it into conservation uses,
- Conservation data and research aimed at developing an information base and improving conservation practices and program delivery, and
- Compliance provisions that require the implementation of specified conservation practices or the avoidance of certain land use changes if the operator wishes to remain eligible for USDA program benefits.

Table 6.1.1—Resource conservation and related programs affecting agriculture, FY 1994 estimated expenditures

Agency and program	FY 1994 estimated expenditure
	$ Million
U.S. Department of Agriculture (USDA) programs:	
Conservation Reserve Program (CRP)	1,748
Wetlands programs	56
Water Quality Program	212
Other conservation	1,532
USDA total	3,548
U.S. Environmental Protection Agency (EPA) programs: [1]	
Water quality programs	384
Drinking water programs	153
Pesticide programs	118
EPA total	655
Army Corps of Engineers programs: [1]	
Dredge and Fill Permit Program (wetlands)	92
Flood control programs	934
Corps total	1,026
U.S. Department of the Interior (USDI) programs: [1]	
Range improvement	10
Water development and management	1,023
Water resources investigations	189
Wetlands conservation	12
Endangered species conservation	27
USDI total	1,261
Federal total	6,490
State and local expenditures on USDA cooperative conservation programs	502

[1] Programs affect other resources as well as agriculture. For more description of non-USDA programs, see pages 170-175.

Sources: Office of Management and Budget (1994); USDA, Office of Budget and Program Analysis data.

Changes in Names of USDA Agencies

Due to the Department of Agriculture Reorganization Act of 1994, names of several USDA agencies referred to in this module were changed:

Prior agency name used in this module	New name
Agricultural Stabilization and Conservation Service (ASCS)	Part of the new Consolidated Farm Service Agency
Cooperative State Research Service (CSRS)	Part of the new Cooperative State Research, Education, and Extension Service
Extension Service (ES)	Part of the new Cooperative State Research, Education, and Extension Service
Farmers Home Administration (FmHA)	Part of the new Consolidated Farm Service Agency
Soil Conservation Service (SCS)	Natural Resources Conservation Service

The technical assistance/education and cost-sharing approaches are components in most of USDA's soil conservation and water quality programs. Public works project activities are used for larger scale watershed protection and flood prevention activities. The fourth approach, payments to take cropland out of production and place it into conservation uses, has been used at various times in the past, such as the Soil Bank program of the 1950's, and is reflected in the current Conservation Reserve Program (CRP) and Wetlands Reserve Program (WRP). This approach usually has the dual objective of improving conservation and reducing surplus crop production. The fifth approach of research and data development is an essential complement to the other approaches, rather than a viable alternative by itself. Five USDA agencies undertake research related to conservation and environmental quality. The sixth and newest approach to conservation—compliance (see module 6.3)—originated in the 1985 Food Security Act with the conservation compliance, sodbuster, and swampbuster provisions.

Land Rental and Easement Payments Expand USDA Expenditures

Between 1986 and 1993, spending on conservation activities by USDA and State and local governments increased steadily (fig. 6.1.1). In current dollars, spending almost tripled between 1986 and 1993; when conservation expenditures are adjusted for inflation, spending doubled.

Since 1986, the mix of USDA expenditures across the six policy approaches has changed. Rental and easement payments accounted for a small share of total conservation efforts prior to the CRP, but are now the largest category, accounting for over half of USDA conservation expenditures in 1994 (fig. 6.1.2, table 6.1.2). Most rental payments were for land enrolled in the CRP. Easement payments supported land accepted into the new WRP.

Technical assistance and education expenditures of $824 million in 1994 accounted for just under one-fourth of the USDA total for conservation purposes. This share was down from 48 percent in 1985.

Higher expenditures for public works activities in 1994, at about 10 percent of USDA conservation spending, reflect emergency measures required by the 1993 Midwest flood. Cost-sharing for conservation practice installation, which accounted for only 8 percent of USDA conservation spending, was at about the same level as conservation data and research.

The President's budget for 1995 that has been enacted by Congress shows reductions in all categories except rental and easement payments, with deep cuts in cost-sharing and public works activities. The budgeted increase in rental payments is mostly for land expected to go into the new WRP.

USDA Programs Help Reduce Erosion and Improve Water Quality

USDA programs contribute to farmers' increasing use of management practices that reduce soil erosion and improve ground and surface-water quality (see modules 3.1, 3.2, and 4.1, and table 6.1.3).

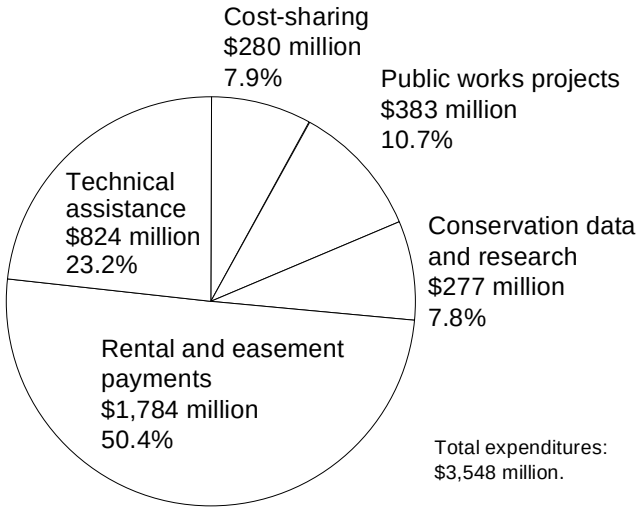
The Water Quality Program (WQP) and Agricultural Conservation Program (ACP) help farmers implement integrated crop management (ICM), nutrient management, and pesticide management. These programs supported action on over 2 million acres in 1992, double 1991's acreage (table 6.1.3). The Water Quality Incentive Projects (WQIP's) and the Integrated Farm Management Option, begun in 1992, should expand assisted acreage. Farmers are eligible for up to $20 an acre toward the cost of implementing practices, such as pest scouting and soil or tissue testing for nutrient needs. In 1992, ACP and WQP also helped farmers install about 4,300 animal waste systems, up from 3,800 in 1991.

USDA conservation programs have significantly reduced erosion from 1987 levels. For example, the CRP converted 36 million cropland acres to protective cover by 1993, and reduced annual cropland erosion by an estimated 690 million tons (table 6.1.4). This would be a drop of over one-fifth in annual cropland erosion from the 1987 level of 3 billion tons (see module 6.2 for more detail on the CRP).

Conservation compliance, pertaining to highly erodible lands (see module 6.3), could reduce erosion an additional one-fifth by 1995, compared with 1987. Conservation measures applied as a result of this provision reduced erosion in 1993 by an estimated 458 million tons (excluding acreage going into the CRP or already eroding at or below the tolerance level).

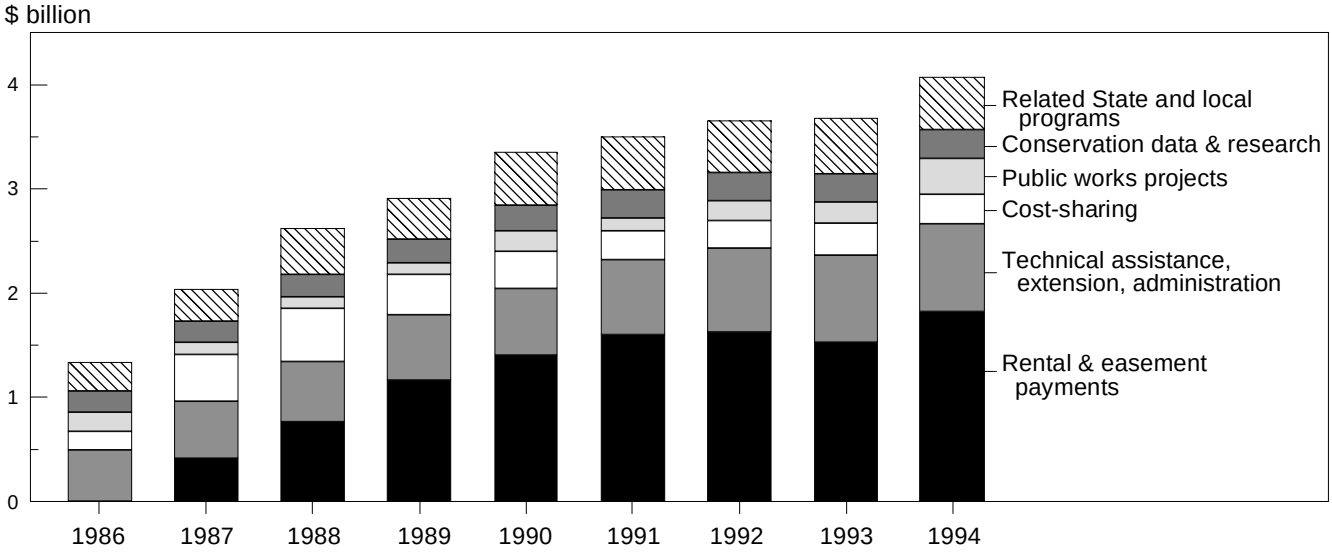
USDA programs are also reducing and improving fertilizer and pesticide use, thereby reducing chemicals entering surface and ground waters. Lands in the CRP receive lower applications of fertilizer and pesticides than if they had remained active cropland. WQP participants who implemented improved nutrient management used 50 million pounds less nitrogen and 65 million pounds less phosphorus in 1992 than in 1991 (table 6.1.4). Pesticide applications fell more than 500,000 pounds. For all three inputs, the reductions were several times greater than those achieved in 1991 by the WQP. These reductions, although still insignificant compared with total use in the United States, can improve water quality in environmentally sensitive areas.

Figure 6.1.2
USDA conservation expenditures, 1994



Source: USDA, Office of Budget and Program Analysis data.

Figure 6.1.1
Conservation expenditures by USDA and related State and local programs, 1986-94



Source: USDA, Office of Budget and Program Analysis data.

Table 6.1.2—USDA conservation expenditures, by activity and program, fiscal 1983-95 [1]

Activity/program	1983	1985	1987	1989	1991	1992	1993	1994 estimated	1995 enacted
					$ Million				
1. Technical assistance, extension, and administration:									
Natural Resources Conservation Service (NRCS) programs--									
Conservation Technical Assistance (CTA)[2]	276.9	302.0	332.0	386.7	426.5	477.9	515.2	502.6	500.5
Great Plains Conservation Program (GPCP)	9.1	9.1	9.1	8.2	8.3	9.1	8.9	9.3	8.9
Resource Conservation & Development (RC&D)	16.3	17.8	17.8	18.4	24.2	26.0	29.9	28.4	28.8
Watershed Protection / Flood Prevention	101.6	76.9	68.1	65.9	70.3	74.3	80.4	83.5	55.9
Small Watershed Program (planning)	8.9	8.9	8.7	8.7	9.2	9.5	9.5	10.9	10.5
Subtotal NRCS	412.8	414.7	435.7	487.9	538.5	596.8	643.9	634.7	604.6
Combined Farm Service Agency (CFSA) programs--									
Agricultural Conservation Program (ACP)[2]	11.0	11.2	9.3	10.1	10.6	10.8	11.2	9.7	5.0
Colorado River Salinity Control Program	0.0	0.0	1.4	2.0	5.9	5.9	5.5	4.9	1.5
Conservation Reserve Program (CRP)	0.0	0.0	21.9	27.9	5.7	11.4	8.9	4.7	0.0
Emergency Conservation Program (ECP)	0.1	0.6	0.1	0.4	0.5	0.8	1.5	1.0	0.0
Forestry Incentives Program (FIP)	1.3	1.2	1.2	1.2	1.2	1.2	1.2	1.3	0.0
Rural Clean Water Program (RCWP)	-0.9	0.0	2.5	-0.7	0.8	0.4	0.0	0.0	0.0
Water Bank Program (WBP)	0.0	0.0	0.0	0.0	0.7	1.1	1.1	0.4	0.0
Wetlands Reserve Program (WRP)	0.0	0.0	0.0	0.0	0.0	0.0	4.9	3.5	7.7
CFSA salaries & exp., conservation	32.8	33.1	47.6	62.4	73.8	72.6	65.3	67.6	62.8
Subtotal CFSA	44.3	46.1	84.0	103.3	99.2	104.2	99.6	93.1	77.0
Extension Service (ES) conservation activities[2]	15.9	16.4	15.7	19.8	29.4	31.1	31.1	33.8	33.8
Forest Service (FS) programs--									
Forest Stewardship Program	10.3	6.9	7.0	6.8	22.6	23.9	23.3	25.8	33.1
Other Cooperative Forest Conservation	4.1	2.9	3.0	6.2	24.8	32.6	37.4	36.7	35.0
Subtotal FS	14.4	9.8	10.0	13.0	47.4	56.5	60.7	62.5	68.1
Subtotal tech. assistance, exten. & administration	**487.4**	**487.0**	**545.4**	**624.0**	**714.5**	**788.6**	**835.3**	**824.1**	**783.5**
2. Cost-sharing for practice installation:									
CFSA programs--									
Agricultural Conservation Program (ACP)[2]	176.5	179.2	172.6	174.0	171.6	179.1	182.8	183.0	95.0
Colorado River Salinity Control Program	0.0	0.0	2.5	3.4	8.9	8.8	8.2	8.2	3.0
Conservation Reserve Program (CRP)	0.0	0.0	245.6	182.3	40.9	39.3	32.0	14.1	4.3
Emergency Conservation Program (ECP)	13.9	4.9	5.3	6.1	8.8	10.3	42.0	24.0	0.0
Forestry Incentives Program (FIP)	11.3	11.5	10.7	11.0	12.4	11.5	11.2	11.5	6.0
Rural Clean Water Program (RCWP)	2.5	1.9	0.0	0.8	0.1	0.0	0.0	0.0	0.0
Wetlands Reserve Program (WRP)	0.0	0.0	0.0	0.0	0.0	0.0	0.1	5.3	7.0
Subtotal CFSA	204.2	197.5	436.7	377.6	242.7	249.0	276.3	246.1	115.3
FS Stewardship Incentive Program (SIP)	0.0	0.0	0.0	0.0	19.9	0.8	17.8	17.9	18.3
NRCS Great Plains Conservation Program (GPCP)	12.2	12.5	11.4	12.2	16.4	16.2	16.4	16.4	6.3
Subtotal cost-sharing	**216.4**	**210.0**	**448.1**	**389.8**	**279.0**	**266.0**	**310.5**	**280.4**	**139.9**
3. Public works project activities (NRCS):									
Emergency Watershed Protection	22.5	5.0	14.8	10.0	20.0	70.0	73.1	248.0	125.0
Flood Prevention Operations	22.7	13.9	11.5	12.8	12.8	21.4	23.8	22.9	0.0
Resource Conservation and Development (RC&D)	14.4	8.5	7.2	6.7	5.7	6.5	2.6	4.6	4.0
Small Watershed Program (operations)	160.6	88.0	82.7	83.7	82.6	89.6	101.3	106.9	14.1
Subtotal NRCS public works projects	**220.2**	**115.4**	**116.2**	**113.2**	**121.1**	**187.5**	**200.8**	**382.4**	**143.1**
4. Rental and easement payments (CFSA):									
Conservation Reserve Program (CRP)	0.0	0.0	410.0	1,162.1	1,590.1	1,612.5	1,510.0	1,729.2	1,739.0
Water Bank Program (WBP)	8.8	8.8	8.4	9.0	13.1	17.1	17.1	7.4	0.0
Wetlands Reserve Program (WRP)	0.0	0.0	0.0	0.0	0.0	0.0	4.4	47.3	63.0
Subtotal rental and easement payments	**8.8**	**8.8**	**418.4**	**1,171.1**	**1,603.2**	**1,629.6**	**1,531.5**	**1,783.9**	**1,802.0**
5. Conservation data and research:									
Natural Resources Conservation Service	75.5	77.8	79.7	90.8	96.0	99.6	99.6	102.1	99.5
Agricultural Research Service	63.5	63.7	59.3	65.9	73.6	73.9	74.3	76.7	76.0
Cooperative State Research, Educ., & Ext. Service	27.9	32.8	31.0	34.5	50.6	49.7	51.7	51.2	43.2
Economic Research Service	5.0	5.4	4.0	3.0	5.5	5.8	6.3	5.0	4.0
National Agricultural Library (water quality)	0.0	0.0	0.0	0.0	0.3	0.3	0.3	0.3	0.3
Forest Service (forest environment research)	19.7	20.3	28.2	31.1	40.7	39.0	41.8	42.0	42.2
Subtotal conservation data and research	**191.6**	**200.0**	**202.2**	**225.3**	**266.7**	**268.3**	**274.0**	**277.3**	**265.2**
6. Conservation compliance and sodbuster (CFSA & NRCS)	**(expenditures are included in technical assistance and administration)**								
USDA total	**1,124.4**	**1,021.2**	**1,730.3**	**2,523.4**	**2,984.5**	**3,140.0**	**3,152.1**	**3,548.1**	**3,133.7**

[1] Based on data from USDA, Office of Budget and Program Analysis.
[2] Includes expenditures for Water Quality Incentives Projects and other activities of the Water Quality Program.

The Colorado River Salinity Control Program reduced the salt load entering the river in 1993 by an estimated 163,000 tons. The downstream benefits (reduction in damages caused by salinity) have been estimated to be $61 annually per ton of salt reduction, or over $9.9 million in total for 1993.

Status of USDA's Conservation Programs[1]

Agricultural Conservation Program (ACP) is USDA's major cost sharing program. Initiated in 1936 and administered by the Agricultural Stabilization and Conservation Service (ASCS), ACP provides cost-sharing (up to $3,500 annually or $35,000 under long-term 10-year agreements) and technical assistance to farmers who carry out approved conservation and environmental protection practices on agricultural land and farmsteads. Some 115,000 farmers received assistance in 1993, down from previous years (table 6.1.5). An increasing amount and proportion of cost-sharing assistance is being directed to support implementation of water quality practices (including those in Water Quality Program activities), 23 percent in 1993, up from 7 percent in 1988 (table 6.1.6). A new practice, Integrated Crop Management (ICM), was made available in 1990 and was applied on 320,000 acres in 1993. The practice includes pest scouting, nutrient testing, and other improved management practices.

Conservation Technical Assistance (CTA), initiated in 1936, provides technical assistance to farmers for planning and implementing soil and water conservation and water quality practices, and is administered by the Soil Conservation Service (SCS) and local Conservation Districts. In 1993, CTA assisted 1.2 million farmers and serviced 62 million acres, maintaining the same level of activity as in recent years (table 6.1.5). This program, with reimbursement from ASCS, also provides technical assistance in planning and implementing practices under the ACP and other cost-sharing programs described below. In recent years, CTA has prepared conservation plans for highly erodible lands and monitored farmers' compliance with these plans to maintain eligibility for USDA program benefits.

Emergency Conservation Program (ECP), initiated in 1978 and administered by ASCS, provides financial assistance to farmers in rehabilitating cropland damaged by natural disasters. Expenditures jumped by 250 percent in 1993 (table 6.1.5), with about two-thirds going toward hurricane relief, one-fifth to flood relief, and the balance to drought and tornado relief. Major recipients in 1993 were farmers in Florida (51 percent), Texas and Hawaii (8 percent each), and Louisiana (7 percent), all suffering hurricane damage. The 1993 flood along the Mississippi and Missouri rivers will be reflected in FY1994 expenditures.

Emergency Watershed Protection Program, initiated in 1950 and administered by SCS, provides technical and financial assistance to local institutions for removal of storm and flood debris from stream channels and for restoration of stream channels and levees to reduce threat of loss of life and property. Local institutions receiving aid must contribute 25 percent of total cost. Expenditures in 1994 tripled over 1993 because of special appropriations to help the Midwest recover from the 1993 flood.

Environmental Easement Program was enacted in 1990 but has received no appropriations for its implementation. The program provides for annual easement payments up to 10 years and up to 100 percent cost-sharing to farmers who agree to deed restrictions that provide long-term protection to environmentally sensitive land or reduce water quality impairment. Payments cannot exceed $50,000 annually and can total no more than $250,000 per farm.

Extension Education. The Extension Service, established in 1923, provides information and recommendations on soil conservation and water quality practices to landowners and farm operators in cooperation with the State Extension Services and State and local offices of USDA agencies and Conservation Districts. About 5 percent of total ES effort is now directed to USDA's Water Quality Program activities, and 4 percent to sustainable agriculture (table 6.1.5).

Conservation Loans and Easements. The Farmers Home Administration (FmHA), established in 1946, provides loans to farmers for soil and water conservation, pollution abatement, and building or improving water systems. Loan activity in both number and expenditures was down again in 1993, continuing a trend since 1990 (table 6.1.5). FmHA may acquire voluntary conservation easements as a means of helping farmers reduce outstanding loan amounts. Approximately 30 of these have been approved to date. FmHA places conservation easements on foreclosed land being sold, or transfers environmentally sensitive lands to Federal and State agencies for conservation purposes. As of September 21, 1994, FmHA had approved 357 property transfers for conservation purposes, for a total of 108,000 acres.

[1] The Conservation Reserve Program, conservation compliance and sodbuster, wetlands programs, and Water Quality Program activities are discussed in subsequent modules.

Table 6.1.3—Major practices implemented under USDA conservation programs, fiscal 1988-93

Practice and program[1]	1988	1989	1990	1991	1992	1993
			Million acres treated			
Grass cover establishment:						
ACP	0.65	0.61	0.58	0.61	0.59	0.53
CRP	7.36	4.27	3.02	0.33	0.79	0.78
Grass cover improvement:						
ACP	1.37	1.17	0.96	1.00	1.00	1.12
CRP	0.47	0.29	0.17	0.04	0.09	0.11
Tree planting:						
ACP	0.16	0.13	0.12	0.13	0.12	0.13
CRP	0.50	0.41	0.19	0.09	0.10	0.12
FIP	0.16	0.16	0.15	0.18	0.16	0.18
Wildlife habitat establishment:						
ACP	0.02	0.02	0.02	0.02	0.03	0.02
CRP	0.39	0.31	0.65	0.01	0.01	0.01
Cropland protective cover:						
ACP	0.75	0.64	0.58	0.61	0.65	0.48
Conservation tillage:						
ACP	0.45	0.33	0.43	0.41	0.56	0.60
WQP regional activities	NA	NA	NA	0.42	0.48	NA
Strip cropping systems: ACP	0.14	0.12	0.15	0.12	0.10	0.08
Integrated crop management: ACP	--	--	0.03	0.20	0.28	0.32
Nitrogen management:[2]						
WQP Demo projects	0	0	NA	0.01	0.22	NA
WQP HUA projects	0	0	NA	0.20	0.44	NA
WQP regional activities	NA	NA	NA	0.13	0.19	NA
Phosphorus management:[2]						
WQP Demo projects	0	0	NA	0.01	0.13	NA
WQP HUA projects	0	0	NA	0.07	0.43	NA
Pesticide management:[2]						
WQP Demo projects	0	0	NA	0.04	0.08	NA
WQP HUA projects	0	0	NA	0.13	0.58	NA
WQP Chesapeake Bay	NA	NA	NA	0.22	0.25	NA
			Million acres served			
Grazing land protection: ACP	3.60	3.77	4.72	3.33	3.66	2.85
Irrigation water conservation: ACP	0.82	0.77	0.69	0.77	0.69	0.80
Terraces and diversions: ACP	1.07	0.93	0.62	0.70	0.75	0.62
Water impoundments: ACP	0.27	0.27	0.22	0.19	0.14	0.14
Sediment control structure: ACP	0.25	0.22	0.21	0.22	0.20	0.18
Sod waterways: ACP	0.22	0.17	0.18	0.26	0.20	0.16
			Number			
Agricultural waste systems:[2]						
ACP	1,947	1,753	2,348	2,912	3,844	4,108
WQP Demo projects	0	0	NA	123	162	NA
WQP HUA projects	0	0	NA	200	325	NA
WQP regional activities	NA	NA	NA	581	74	NA
Wellhead protection:						
WQP Demo projects	0	0	NA	62	463	NA
WQP HUA project	0	0	NA	2,304	1,553	NA

[1] ACP = Agricultural Conservation Program. CRP = Conservation Reserve Program. FIP = Forestry Incentives Program. HUA = Hydrologic Unit Area. WQP = Water Quality Program. No data available for programs or projects not listed.

[2] Some of the practices implemented in the WQP in 1991 and 1992 were cost-shared under ACP and are duplicative.

NA = Not available. Source: USDA, annual reports of the various programs.

Farmland Protection provision, enacted in 1990, stipulates that the FmHA provide guarantees and interest rate subsidies for institutional loans to States for protecting and preserving farmland for agricultural use. A pilot implementation of the provision in Vermont, called "Farms for the Future," guaranteed a $6.8 million loan in FY1993 for purchase of development rights on farmland. A similar loan has also been guaranteed in FY1994.

Flood Prevention Operations, initiated in 1944 and administered by SCS, provide technical and financial assistance to local institutions in 11 major river basin systems for installation and improvement of dams, levees, and other flood prevention measures. Financial assistance in FY1994 is estimated at about $23 million, down slightly from 1993.

Forestry Incentives Program (FIP), initiated in 1975 as a separate program, provides cost-sharing up to 65 percent for tree planting and timber stand improvement for private forest lands of no more than 1,000 acres. Maximum payment per owner is $10,000 annually, but payments have averaged about $2,500 (table 6.1.5). Nearly 5,500 forest owners participated in the program in 1993, with 214,000 acres enrolled. ASCS administers the program and the Forest Service (FS) provides technical assistance.

Forest Stewardship Program, enacted in 1990 and administered by the Forest Service, provides grants to State forestry agencies for expanding tree planting and improvement and for providing technical assistance to owners of nonindustrial private forest lands in developing and implementing forest stewardship plans to enhance multi-resource needs.

Table 6.1.4—Impacts of USDA conservation programs on erosion and chemicals, fiscal 1988-93[1]

Impact and program	1988	1989	1990	1991	1992	1993
			Million tons			
Erosion reduced/soil saved by:						
Conservation Reserve Program [2]	514	596	644	654	672	692
Conservation compliance [3]	0	0	0	NA	236	458
Agricultural Conservation Program [4]	40	34	33	34	30	29
Conservation Technical Assistance and GPCP [4, 5]	463	353	353	282	298	321
Annual Acreage Reduction Program [4, 6]	107	62	55	60	39	46
WQP regional activities	NA	NA	NA	2	NA	NA
			Million lbs.			
Nitrogen application reduced by:						
WQP Demo projects [4]	NA	NA	NA	0.9	8.9	NA
WQP HUA projects [4]	NA	NA	NA	1.7	38.5	NA
WQP regional activities [4]	NA	NA	NA	8.1	5.9	NA
Phosphorus application reduced by:						
WQP Demo projects [4]	NA	NA	NA	0.2	7.3	NA
WQP HUA projects [4]	NA	NA	NA	1.5	57.4	NA
WQP regional activities [4]	NA	NA	NA	4.4	5.8	NA
			1,000 tons			
Salt load reduced by:						
Colorado River Salinity Control Program [2]	62	75	92	105	127	163
			1,000 lbs. active ingredient			
Pesticide load reduced by:						
WQP Demo projects [4]	NA	NA	NA	48	66	NA
WQP HUA projects [4]	NA	NA	NA	191	462	NA

NA = Not available.

[1] No data or estimates available for programs not listed. The erosion reductions are estimates based on long-term national weather patterns, and do not reflect annual variations in weather. [2] All lands treated by program, including those first treated in past years with practices that are still effective. [3] Minimum estimate for 1992 and 1993 based on 18 and 35 million acres of additional lands with a conservation plan fully implemented, excluding land in the CRP or land eroding at or below the soil loss tolerance (T) level in 1987 (see table 6.3.1. for more information on lands subject to compliance). The average erosion reduced was assumed to be 13.1 tons/acre/year, based on an SCS sample of HEL determined fields with a fully implemented plan, excluding those in the CRP. [4] Reduction on lands newly treated during year only. No estimates exist of continuing reductions on lands treated in prior years. [5] Includes partial double counting with CRP, compliance, and ACP programs. [6] Assumes average reduction of 2 tons/acre/year. While this is a commodity program, idling the land and reducing cultivation preserve soil that would otherwise erode.

Source: USDA. annual program reports of the various agencies.

Table 6.1.5—Status of selected USDA conservation programs, fiscal 1989-94

Program[1]	1989	1990	1991	1992	1993	1994
Agricultural Conservation Program (ASCS):						
Number of participants (thousand)	124.4	123.8	123.9	120.2	114.9	NA
Average assistance per participant ($) [2]	1,480	1,608	1,470	1,580	1,685	NA
% technical / % cost-sharing	6/94	6/94	6/94	6/94	6/94	NA
Conservation Technical Assistance (SCS):						
Cooperators assisted (million)	1.3	1.8	1.2	1.2	1.2	NA
Cooperators applying practices (million)	1.0	0.4	0.9	0.5	0.5	NA
Resource management system acres (million)	25.2	27.4	18.4	18.0	15.9	NA
Acres serviced by CTA (million)	62.6	60.7	59.6	59.6	62.1	NA
Extension Education (ES):						
Water Quality Program FTE [3]	NA	NA	NA	698	711	736
(% of total) [4]				(4.3%)	(4.5%)	(4.6%)
Sustainable Agr. Initiative FTE	NA	NA	NA	634	635	659
(% of total)				(4.0%)	(4.0%)	(4.2%)
Great Plains Conservation Program (SCS):						
Total active contracts (whole farm units)	5,129	5,443	5,779	6,336	6,761	NA
New contracts during year	953	971	1,047	1,185	1129	NA
Applications awaiting funding	1,725	1,909	2,580	2,680	2599	NA
Acres under active contracts (million)	15.2	16.6	15.1	19.4	19.9	NA
Counties covered in 10 States	518	518	518	556	556	NA
Avg. cost/new contract ($1,000) [2]	21	22	23	21	22	NA
% technical / % cost-sharing	40/60	38/62	33/67	36/64	35/65	NA
Forestry Incentives Program (ASCS):						
Number of participants	5,048	4.760	5,417	5,179	5,467	NA
Acres treated (1,000)	198	187	215	208	214	NA
Average assistance per acre [2]	$62	$61	$63	$61	NA	NA
Average assistance per participant/year [2]	$2,436	$2,394	$2,511	$2,452	$2,268	NA
% technical / % cost-sharing	10/90	11/89	9/91	10/90	10/90	NA
Emergency Conservation Program (ASCS):						
Number of farms assisted	4,861	8,958	6,877	4,907	4929	NA
Acres served (million)	2.5	1.1	1.0	1.0	1.4	NA
Avg. assistance per acre[2]	$3	$17	$9	$11	$31	NA
Colorado River Salinity Control Program (ASCS):						
Participants	127	172	214	349	527	NA
States with participants	3	3	3	3	3	NA
Avg. assistance per participant ($1,000) [2]	43	60	69	42	26	NA
Conservation Loans and Easements (FmHA):						
Soil and water loans:						
(million $)	5.9	6.1	5.5	2.7	2.3	NA
(number)	360	247	206	138	123	NA
Conservation easements, number to date	3	13	14	15	20	NA
Acres in easements, total to date	321	2,756	2,774	2,791	5,813	NA
Properties transferred for conservation purpose--						
Number	13	17	151	71	75	NA
Acres	4,047	8,954	50,447	21,692	21,090	NA
Small Watershed Program (SCS):						
Projects authorized for planning	18	18	11	35	33	37
Projects authorized for installation	19	19	23	11	22	25
Obligations for planning (million $)	8.4	8.6	8.9	9.2	9.5	10.9
Obligations for installation (million $)	137.0	130.1	140.8	144.2	158.3	195.3
Resource Conservation and Development Program (SCS):						
Active areas (number)	189	194	209	236	250	275
State and local funding (million $)	NA	108.1	160.5	131.1	75.1	NA
State and local funding per Federal $	NA	$3.96	$5.37	$4.03	$2.31	NA

NA = Not available

[1] The agency administering the program is in parentheses. For Federal expenditures on technical and cost-sharing assistance, see table 6.1.2. [2] Includes both technical and cost-sharing assistance. [3] Full-time equivalents. [4] Total FTE devoted to all extension activities at Federal and State levels were 15,972 in 1992, 15,789 in 1993, and 15,850 estimated in 1994.

Source: USDA, annual program reports of the various agencies and Office of Budget and Program Analysis data.

Through FY1993, 63,000 plans had been developed covering 6.2 million acres of private forest lands. A companion **Stewardship Incentive Program (SIP),** administered by the Forest Service through ASCS, provides cost-sharing up to 75 percent for practices in the approved forest stewardship plans. Payments may not exceed $10,000 annually per landowner and practices must be maintained for at least 10 years. Through FY1993, about 7,000 landowners had implemented practices on over 670,000 acres.

Forest Management. The Forest Service, established in 1905, conducts conservation activities that include forest resource management, emergency reforestation, tree improvement, and urban and community forestry.

Great Plains Conservation Program (GPCP), initiated in 1957 and administered by SCS, provides technical and financial assistance in 10 Great Plains States for conservation treatment on entire operating units. Financial cost-share assistance is limited to $35,000 per farmer contract. GPCP is now funding a water quality project in each of the 10 States. In 1993, over 6,700 farms were active in the program, covering nearly 20 million acres, a level of participation above recent years (table 6.1.5).

Integrated Farm Management Program (IFM), enacted in 1990 and administered by ASCS, allows farmers to adopt resource-conserving crop rotations without losing farm program benefits. Participants devote at least 20 percent of their enrolled crop-acreage bases to resource-conserving crops such as legumes or legume- grass-small grain mixtures, without losing crop acreage bases and reducing farm program yields. Unlimited haying or grazing may occur on up to 50 percent of the resource-conserving crops on Acreage Conservation Reserve lands. Other haying and grazing provisions further increase producers' options. Up to 5 million acres may be enrolled annually, but results to date have been much less than that. While enrollment nearly tripled in FY1993 over FY1992 (119,000 acres compared with 40,000), the 1991-94 total is only 321,474 acres enrolled.

Pesticide Record-Keeping provision requires private applicators of restricted-use pesticides to maintain records accessible to State and Federal agencies regarding products applied, amount, and date and location of application. The requirement became effective May 10, 1993, and is administered by the Agricultural Marketing Service. The National Agricultural Statistics Service (NASS) will annually survey the applicators to compile aggregated statistics for the national pesticide data base.

Resource Conservation and Development Program (RC&D), initiated in 1962, assists multicounty areas in enhancing conservation, water quality, wildlife habitat, recreation, and rural development. In 1994, 275 active areas existed, the highest recent number (table 6.1.5). During 1990-93, Federal funding (mostly for SCS technical assistance and administration) was supplemented 2- to 5-fold by State and local funds.

Small Watershed Program, initiated in 1954, assists local organizations in flood prevention, watershed protection, and water management. Part of this effort involves establishment of measures to reduce erosion, sedimentation, and runoff. Over 20 local projects are installing measures and over 30 more are in the planning stage (table 6.1.5). SCS administers the program and provides technical assistance.

Data and Research Activities: **Agricultural Research Service (ARS)** conducts research on new and alternative crops and agricultural technology to reduce agriculture's adverse impacts on soil and water resources. **Cooperative State Research Service (CSRS)** administers competitive grants and coordinates conservation and water quality research conducted by State Agricultural Experiment Stations and land-grant universities. The **Economic Research Service (ERS)** estimates economic impacts of existing and alternative policies, programs, and technology for preserving and improving soil and water quality; and with the **National Agricultural Statistics Service (NASS),** it collects data on farm chemical use, agricultural practices, and costs and returns. The **Forest Service (FS)** conducts research on environmental and economic impacts of alternative forest management policies, programs, and practices. The **Soil Conservation Service (SCS)** conducts river basin studies, soil surveys, snow surveys, and National Resource Inventories; and it supports plant materials centers.

Non-USDA Programs That Affect Agriculture

The Environmental Protection Agency (EPA), the U.S. Army Corps of Engineers, and the U.S. Department of the Interior administer programs that affect resource use in agriculture. In addition, all States provide technical and extension assistance to farmers and many provide financial or other incentives for implementing conservation and water

Table 6.1.6—Agricultural Conservation Program (ACP) expenditures by primary purpose, fiscal 1988-93

Primary purpose	Cost-share expenditures					Percent of total				
	1988 [1]	1990	1991	1992	1993	1988	1990	1991	1992	1993
	$1,000					*Percent*				
Erosion control	133.8	112.2	111.5	106.3	93.7	71.2	64.7	61.7	58.9	55.6
Water conservation	27.7	24.7	23.6	22.8	22.5	14.7	14.3	13.0	12.6	13.3
Surface water quality (SWQ):										
Sediment	1.7	3.5	4.9	5.9	5.7	0.9	2.0	2.7	3.3	3.4
Animal waste	6.8	13.8	18.4	20.5	20.9	3.6	7.9	10.2	11.3	12.4
Fertilizer	1.4	2.8	4.8	5.8	5.9	0.7	1.6	2.7	3.2	3.5
Toxics	0.4	0.3	0.6	1.1	1.1	0.2	0.2	0.3	0.6	0.7
Salinity	2.4	1.2	0.8	0.9	1.0	1.3	0.7	0.4	0.5	0.6
Other SWQ	0.7	0.8	1.0	2.5	3.3	0.4	0.5	0.6	1.4	2.0
Subtotal SWQ	13.4	22.4	30.5	36.7	38.0	7.1	12.9	16.9	20.3	22.6
Ground water quality	0.3	0.3	0.4	0.4	0.2	0.2	0.2	0.2	0.2	0.1
Energy	0.9	1.1	1.2	1.2	1.4	0.5	0.6	0.7	0.7	0.8
Wildlife	1.3	1.3	1.5	1.4	1.1	0.7	0.7	0.8	0.8	0.7
Wood production	9.1	9.9	10.9	10.2	9.8	4.8	5.7	6.0	5.7	5.8
All other	1.5	1.5	1.2	1.5	1.9	0.8	0.9	0.7	0.8	1.1
Total [2]	188.0	173.4	180.8	180.5	168.7	100.0	100.0	100.0	100.0	100.0

[1] Recent peak year for total cost-share expenditures under ACP.

[2] These data differ slightly from the more recent information in table 6.1.2, but are the only available source of expenditures by primary purpose.

Source: USDA, ASCS, Annual Statistical Summaries of the Agricultural Conservation Program.

quality practices. In some cases, non-USDA conservation and environmental programs limit farmers' management decisions by restricting land use, chemical use, water use, and cropping practices.

EPA-Administered Programs

The Clean Water Act is the Nation's most important water quality protection law. Originally passed in 1972, the Act's goal is to "restore and maintain the chemical, physical, and biological integrity of the Nation's waters." The Act contains a number of provisions that affect agriculture.

The Clean Lakes Program, reauthorized by Section 314 of the Clean Water Act, authorizes EPA grants to States for lake classification surveys, diagnostic/feasibility studies, and for projects to restore and protect lakes. To remain eligible for grants, a State must submit a biannual report to the EPA on the status of lakes and establish a clean lakes demonstration program. States typically rely on NPDES (see next page) permit programs and Section 319 nonpoint source management programs to control pollutants entering lakes. In 1992, States reported more watershed planning and nonpoint source controls to reduce pollutants than in previous years. States have relied on farmers to voluntarily adopt alternative management measures in areas surrounding designated lakes to reduce agricultural runoff.

The Nonpoint Source Program, established by Section 319 of the Clean Water Act, requires States and U.S. territories to file assessment reports with EPA, identifying navigable waters that cannot attain water quality standards without reducing nonpoint source pollution. Management plans must then be developed to reduce nonpoint source pollution. All States now have EPA-approved plans. The Act authorizes up to $400 million annually in grants to States for developing and promoting these plans, with $50 million awarded in fiscal 1992. The funds, however, cannot be used to provide cost-sharing to individual landowners. To the extent that States require and enforce reductions in agricultural nonpoint source pollution, the program could impose significant costs on the agricultural sector.

The National Estuary Program was established by Section 320 of the Clean Water Act. It provides for the identification of nationally significant estuaries that are threatened by pollution; for preparation of conservation and management plans; and for Federal grants to State, interstate, and regional water pollution control agencies to implement the plans. So far, 21 estuaries have been designated (fig. 6.1.3). USDA is

providing accelerated technical and financial assistance to farmers in designated areas to help States carry out their estuary management plans.

The National Pollutant Discharge Elimination System (NPDES) Permit Program was established by Section 402 of the Clean Water Act. It controls point-source discharges from treatment plants and industrial facilities (including large animal and poultry confinement operations). For 1993, EPA authorized 38 States and 1 territory to operate the NPDES permit program. Confined animal operations are the only segment of production agriculture subject to the NPDES program. Discharge permits are required for confined animal feeding operations that discharge to U.S. waters for most storm events and:

(1) have more than 1,000 animal units (AU's); or

(2) have more than 300 AU's and discharge directly to waters; or

(3) have less than 300 AU's but are found to cause water impairments, based on onsite findings by the regional administrator of EPA or director of the State permit program.

Coastal Nonpoint Pollution Control Programs. In 1990, amendments to the Coastal Zone Management Act, administered by the National Oceanic and Atmospheric Administration and EPA, required that States with coastal zone management programs develop programs to control nonpoint sources of pollution. In total, 29 States have approved management programs and are developing nonpoint programs for approval. The nonpoint programs must specify and implement management measures to restore and protect coastal waters, in conformity with EPA guidance. Management measures for agriculture are specified for erosion and sediment, nutrients, pesticides, grazing, and animal waste. The State program must implement these management measures by whatever means necessary, including regulations.

Six **regional programs** (fig. 6.1.3) for addressing water quality problems exist as cooperative efforts among States, which contribute funds. Each program is managed by a regional authority consisting of EPA, other Federal agencies, and appropriate State agencies. Under USDA's Water Quality Program (see module 6.5), the Soil Conservation Service has accelerated technical assistance to landowners in the six project areas, and the Agricultural Stabilization and Conservation Service has provided cost-share financial assistance.

The Safe Drinking Water Act (SDWA) requires the EPA to set standards for drinking water quality and requirements for water treatment by public water systems. Also, SDWA requires States to establish a wellhead protection program to protect public water system wells from contamination by chemicals, including pesticides, nutrients, and other agricultural chemicals. The EPA may make grants to States for developing and implementing safe drinking water and wellhead protection programs. Currently, 26 States have an approved wellhead protection program. Proposed reauthorization would extend wellhead protection programs to surface water supplies.

Pesticide programs, established by the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA), provide the legal basis under which pesticides are regulated. A pesticide can be restricted or banned if it poses unacceptable risks to human health or the environment. The re-registration process, mandated in 1988 for all active ingredients then on the market, has resulted in manufacturers dropping many less profitable products rather than paying the registration fees.

The **Comprehensive State Ground-Water Protection Program** (CSGWPP), initiated by EPA in 1991, coordinates operation of all Federal, State, tribal, and local programs that address ground-water quality. States have the primary role in designing and implementing CSGWPP's in accordance with distinctive local needs and conditions.

U.S. Army Corps of Engineers-Administered Programs

The Dredge and Fill Permit Program, established by Section 404 of the Clean Water Act, regulates dredging, filling, and other alterations of waters and wetlands, including wetlands owned by farmers. Recently, USDA was given authority to make wetland determinations on agricultural land (see module 6.4).

Flood control activities include the construction, rehabilitation, and operation of dams, levees, and other facilities for flood control. An emergency supplemental appropriation in 1994 provided funds to complete repair of nonfederal levees damaged by the Midwest floods of 1993.

U.S. Department of the Interior-Administered Programs

The Endangered Species Act is the Nation's chief statute to conserve endangered or threatened species and their ecosystems. When a species is designated as threatened with extinction, a recovery plan is developed to protect it from further population declines. The plan could include restrictions on cropping practices, water use, and pesticide use.

Endangered Species Conservation provides State grants for the conservation of threatened and endangered species and for monitoring the status of candidate species.

Range Improvements, including rehabilitation and protection, are undertaken by the Bureau of Land Management with a percentage of receipts from grazing of livestock on the public lands.

Water Development and Management activities in the 17 Western States by the Bureau of Reclamation include construction, rehabilitation, and operation of dams and facilities for water conservation, irrigation, municipal and industrial use, flood control, recreation, and electric power generation.

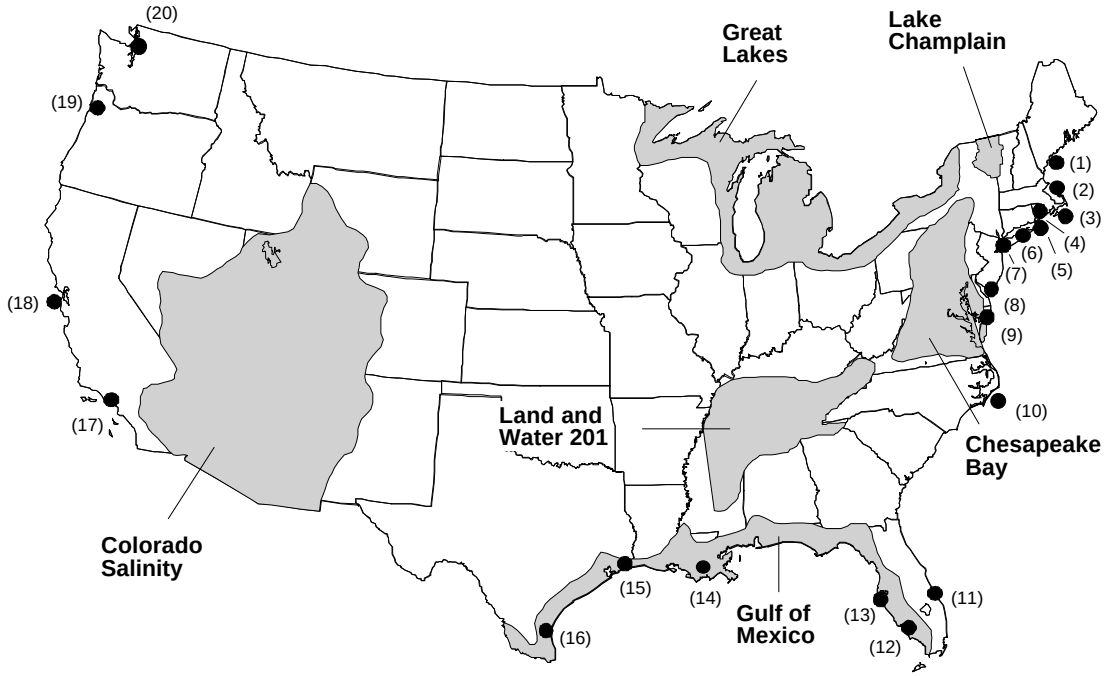
Water Resources Investigations by the U.S. Geological Survey include monitoring and appraisals of the Nation's water resources to support Federal, State, and local government decisions on water development, management, and quality; and energy development.

Wetlands Conservation includes obtaining real property interest in lands or waters, the restoration or enhancement of habitat, and training and development for wetlands management.

State-Administered Programs

All States fund technical assistance for conservation and water quality through conservation and natural resource districts at the county or multicounty level. Also, all States fund cooperative extension education efforts. In addition, 35 States administer programs directed toward erosion control (18 States), nutrient control (16), or pesticide control

Figure 6.1.3
Estuary and regional programs for water quality, 1993



- Estuaries of national significance: (1) Casco Bay, (2) Massachusetts Bay, (3) Buzzards Bay, (4) Narragansett Bay, (5) Peconic Bay, (6) Long Island Sound, (7) New York-New Jersey Harbor, (8) Delaware Bay, (9) Delaware Inland Bays, (10) Albemarle-Pamlico Sound, (11) Indian River Lagoon, (12) Sarasota Bay, (13) Tampa Bay, (14) Barrataria-Terrebonne Estuary, (15) Galveston Bay, (16) Corpus Christi Bay, (17) Santa Monica Bay, (18) San Francisco Bay, (19) Tillamook Bay, (20) Puget Sound, (21) San Juan Bay (Puerto Rico, not pictured).

Technical assistance provided by the Soil Conservation Service.

(14) (table 6.1.7). These water quality programs are carried out with such measures as cost sharing (25 States), tax credits (6), low-interest loans (5), input taxes (4), restrictions on land-use practices (3), and purchase of easements (2).

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References

Massey, D. (1989). "State Financing of Soil Conservation Programs." Symposium on Legal, Institutional, Financial and Environmental Issues. American Society of Civil Engineers, Newark, DE. July 18-20.

National Association of Conservation Districts (1988). *Update to Handbook of State and Local Costsharing and other Financial Incentive Programs*. No. 68. Washington, DC. Dec.

Office of Management and Budget (1994). *Budget of the United States Government - Appendix - Fiscal Year 1995*. U.S. Government Printing Office.

Ribaudo, M., and D. Woo (1991). "Summary of State Water Quality Laws Affecting Agriculture," *Agricultural Resources: Cropland, Water, and Conservation Situation and Outlook Report*. AR-23. U.S. Dept. Agr., Econ. Res. Serv. Sept.

U.S. Department of Agriculture, Agricultural Stabilization and Conservation Service (1994). Fiscal year reports for the various programs administered by ASCS.

_____, Extension Service (1994). Unpublished data on ES activities.

_____, Forest Service (1994). Reports and data on the various programs administered by FS.

_____, Office of Budget and Program Analysis (1994). Unpublished data on USDA program expenditures and budget.

_____, Soil Conservation Service (1994). Reports and data on the various programs administered by SCS.

U.S. Environmental Protection Agency, Water Planning Division (1984). *Report to Congress: Nonpoint Source Pollution in the United States*.

Table 6.1.7—States with water quality programs affecting agriculture, 1990

State	Specific problem treated			Measures used					
	Erosion	Nutrients	Pesticides	Restrictions	Input taxes	Cost share	Low interest loans	Tax credits	Purchase of easements
Alabama						X			
Arizona		X	X						
Arkansas			X					X	
California			X		X				
Colorado		X	X			X			
Connecticut	X	X							
Delaware	X					X		X	
Florida	X	X	X			X			
Idaho	X	X				X			
Illinois	X					X			
Indiana						X			
Iowa	X				X	X	X	X	
Kansas		X	X			X			
Maine	X					X			
Maryland	X	X	X	X		X			
Michigan	X	X							
Minnesota	X	X				X			X
Mississippi						X			
Missouri						X	X		
Montana	X					X	X		
Nebraska		X	X	X		X			
New Jersey						X			X
New York			X						
North Carolina			X			X		X	
North Dakota		X	X						
Ohio	X					X			
Oklahoma	X	X						X	
Oregon								X	
Pennsylvania	X	X		X		X			
South Carolina	X	X						X	
South Dakota	X				X				
Utah							X		
Virginia			X			X		X	
Wisconsin	X	X	X		X	X			
Wyoming	X	X				X			
Total, 35	18	16	14	3	4	25	5	6	2