

INVESTING IN CONSERVATION



MARYLAND AGRICULTURAL WATER QUALITY COST-SHARE PROGRAM

Annual Report 2015



Joe Bartenfelder
Maryland Agriculture Secretary

INVESTING IN CONSERVATION

Any seasoned investor will tell you that there is no such thing as a sure bet. But here in Maryland, investing in agricultural conservation projects comes pretty close. Since 1984, the Maryland Agricultural Water Quality Cost-Share (MACS) Program has helped thousands of Maryland farmers install conservation projects on their farms that are making a real difference for Maryland's natural resources and the Chesapeake Bay. What's more, our conservation grants have helped farmers meet or exceed most of the state's short-term Bay restoration milestones.

Take a drive through the countryside and you'll see what I mean. In late fall, you'll see the first green shoots of cover crops poking through the corn residue. Last year, Maryland farmers used our grants to plant a record 475,560 acres of cover crops on their fields to recycle unused nutrients, manage soil erosion and protect local waterways.

Maryland's nutrient management regulations require farmers to install stream protection practices such as setbacks, livestock crossings, fences and alternative water sources to keep farm animals out of streams. Many farmers could not afford to install these practices without financial help. This year alone, our grants helped farmers install more than 100 stream protection practices on their farms.

Head west toward the rolling hills of Carroll and Frederick counties, and you'll see a patchwork of contour fields, grassed waterways and terraces installed with our conservation grants to prevent erosion and support healthy soil.

On the Eastern Shore, manure storage structures protect stockpiled chicken litter from rainwater runoff until it's safe to apply to fields, while concrete pads safeguard surface and groundwater resources during poultry house cleanouts. In 2015, our grants helped poultry and livestock farmers exceed agricultural milestone commitments for the construction of animal waste storage structures.

During the year, Maryland farmers used our grants to move 167,237 tons of manure away from farm fields with high soil phosphorus levels—a 40 percent increase over last year's transport figures. Now that our new Phosphorus Management Tool regulations are in place, we expect demand for manure transport to increase during the multi-year phase-in period, even as we invest in promising new alternative animal waste technologies.

Our investments in conservation are transforming agriculture and helping Maryland meet the Total Maximum Daily Load pollution limits for the Chesapeake Bay by 2025. Conservation farms produce healthy food, strengthen local economies, add beauty to the landscape, and enhance the quality of life for the citizens of our state. I'd say that's a pretty good return on our investment. Please read on to learn more about the many positive returns we have achieved for Maryland's natural resources and the Bay.

OUR MISSION

Since 1984, the Maryland Agricultural Water Quality Cost-Share Program has helped thousands of Maryland farmers finance water quality improvement projects on their farms, invest in sustainable agricultural practices and comply with federal, state and local environmental requirements.

The program provides farmers with conservation grants that

cover up to 87.5 percent of the cost to install more than 30 eligible best management practices on their farms to prevent soil erosion, manage crop nutrients, improve farm efficiency and safeguard water quality in streams, rivers and the Chesapeake Bay. These grants are helping farmers meet short-term Bay milestone

commitments and long-term restoration goals outlined in Maryland's Watershed Implementation Plan.

The Maryland Agricultural Water Quality Cost-Share Program is delivered by the state's 24 soil conservation districts with technical guidance from USDA's Natural Resources Conservation Service.

CHESAPEAKE BAY MILESTONES

2-YEAR MILESTONE PROGRESS—JULY 2013 THROUGH JUNE 2015*

MILESTONE	GOAL	STATUS AS OF JUNE 30, 2015	PERCENTAGE OF MILESTONE ACHIEVED
Cover Crops	Plant 386,007 acres annually	475,560 acres planted during 2014-2015 planting season	123%
Manure Transport	Annually transport 44,000 tons of excess poultry litter or livestock manure to farms or alternative use facilities that can use the manure safely and in accordance with nutrient management plans	167,237 tons of manure transported in 2015	380%
Off-Stream Watering Without Fencing	Construct 1,832 acres of off-stream watering sources for livestock	3,948 acres protected	216%
Retirement of Highly Erodible Land	Retire 973 acres of highly erodible land by 2015	1,651 acres retired and planted with protective vegetation	170%
Streamside Forest Buffers	Plant 353 acres of forest buffers next to streams by 2015	332 acres planted	94%
Streamside Grassed Buffers	Plant 866 acres of grassed buffers next to streams by 2015	779 acres planted	90%
Waste Storage Structures/ Livestock	Construct 55 livestock waste storage structures by 2015	104 structures installed	189%
Waste Storage Structures/ Poultry	Construct 12 poultry waste storage structures by 2015	36 structures installed	300%

*In some instances, progress includes practices installed with funds from both state and federal programs.

2015 FUNDING SUMMARY

In Fiscal Year 2015, the Maryland Agricultural Water Quality Cost-Share Program provided Maryland farmers with \$31.2 million in grants to install 2,440 conservation projects on their farms that control soil erosion, reduce nutrient runoff and protect water quality in streams, rivers and the Chesapeake Bay. These grants helped Maryland farmers meet or exceed the majority of the third set of two-year Bay restoration milestones.

Farmers who received cost-share grants during the fiscal year invested about \$771,500 of their own money into projects that will prevent an estimated 2.9 million pounds of nitrogen and 113,500 pounds of phosphorus from entering Maryland waterways. Cover crops were responsible for the bulk of the nitrogen and phosphorus savings. Additionally, the projects will prevent an estimated 13,843 tons of soil from impacting local streams.

Low Interest Loans for Agricultural Conservation, or LILAC loans, help farmers cover equipment purchases and other start-up costs for major projects. Guaranteed by the Maryland Water Quality Revolving Loan Fund, these loans are typically offered at below-market interest rates. They are available at lending institutions statewide. In Fiscal Year 2015, farmers qualified for \$205,845 in low interest loans to help pay for manure handling and conservation equipment.

PROGRAM SUMMARY | FISCAL YEAR 2015

CAPITAL PROJECTS	NUMBER OF PROJECTS	FUNDS
Total Approved from State Funds	478	\$ 9,457,632

Capital Projects Completed		
CREP Projects with State Funds	39	94,393
All Other Projects with State Funds	350	5,316,320
With Federal Funds	10	84,082
Total Capital Projects Completed	399	5,494,795

Special Projects Completed		
Cover Crops	1,656	24,055,265
Manure Transport ¹	253	851,304
Manure Injection	132	806,855
Total Special Projects Completed	2,041	25,713,424
Total Capital & Special Projects Completed	2,440	\$31,208,219²

Environmental Benefits	Nitrogen	Phosphorus
Estimated Pounds of Nutrients Removed by Capital Projects	77,766	18,390
Estimated Pounds of Nutrients Removed by Cover Crops	2,853,354	95,112
	Tons	Acres of Land
Tons of Soil Saved Per Year ³	13,843	1,218
Manure Managed Daily with Animal Waste Storage Structures	Tons of Manure	Animal Units ⁴
Poultry Manure Managed Daily	364	24,751
Dairy Manure Managed Daily	263	6,961
Beef Manure Managed Daily	179	5,148
Other Animal Manure Managed Daily	14	686
Total Animal Manure Managed Daily	820	37,546

¹Does not include poultry company matching funds (\$409,548)

²Includes more than \$15 million in special funds from the Chesapeake Bay 2010 Trust Fund

³Based on the Revised Universal Soil Loss Equation (RUSLE)

⁴One animal unit = 1,000 lbs. of live animal weight

Note: Nutrient reduction figures are based on the best information available and are consistent with the current Chesapeake Bay Model.



A covered heavy use area installed at a beef operation in Washington County helps protect water quality.

CAPITAL PROJECTS

Most of the best management practices funded by the Maryland Agricultural Water Quality Cost-Share Program are financed through the capital program by the sale of general obligation bonds. In Fiscal Year 2015, the program provided farmers with \$5.4 million to install 360 conservation projects on their farms to protect soil and water resources. These projects often contained multiple best management practices described on pages 6 and 7.

Grassed waterways, heavy use area protection practices, livestock fencing, waste storage structures, watering facilities, grade stabilization structures, lined waterways, riparian herbaceous cover, dead bird composting facilities, and roof runoff structures round out the top ten practices financed by the capital program in Fiscal Year 2015.

SOIL CONSERVATION DISTRICT SUMMARY FOR CAPITAL PROJECTS | FISCAL YEAR 2015

DISTRICT	COMPLETED PROJECTS	MACS PAYMENT
Allegany	4	\$ 26,527
Anne Arundel	3	19,515
Baltimore County	19	142,978
Calvert	4	49,548
Caroline	27	595,895
Carroll	79	756,690
Catoctin	12	264,995
Cecil	4	74,528
Charles	3	44,358
Dorchester	25	258,262
Frederick	31	743,450
Garrett	7	199,985
Harford	19	143,768
Howard	6	56,355
Kent	26	197,003
Montgomery	3	11,365
Prince George's	4	48,691
Queen Anne's	26	516,495
Saint Mary's	16	155,830
Somerset	8	91,761
Talbot	2	205,039
Washington County	14	213,677
Wicomico	14	472,206
Worcester	4	111,478
Total	360	\$5,400,399

COMPLETED MACS COST-SHARED PRACTICES BY DISTRICT | FISCAL YEAR 2015

Practice	Allegany	Anne Arundel	Baltimore County	Calvert	Caroline	Carroll	Catoctin	Cecil	Charles	Dorchester	Frederick
Conservation Cover											3
Contour Farming											
Contour Orchard											
Critical Area Planting		2		1			1				
Dead Bird Composting Facility					4					2	
Diversion			1		1					1	
Fencing	2		5			9			1	1	7
Field Border											
Filter Strip											1
Vegetated Treatment Area											
Grade Stabilization Structure			1	2	4			3		2	
Grassed Waterway		1	6			25	6	2		1	8
Heavy Use Area Protection			1		12	7				5	
Lined Waterway or Outlet				3	2			3			
Livestock Pipeline											
Riparian Forest Buffer	2		1			4	2				
Riparian Herbacious Cover					2					15	
Roof and Covers											
Roof Runoff Structure		1				4					1
Sediment Basin											
Sediment Control Pond				2					1		
Spring Development						6					2
Stream Crossing			3			5			1		1
Strip Cropping, Contour											
Strip Cropping, Field											
Terrace System											
Waste Storage Structure					7	11	1			2	4
Waste Treatment Lagoon											
Wastewater Treatment Strip											
Water Control Structure					1						
Water Well						1					
Watering Facility	2		4			11	2				7
Wetland Restoration					1						
Total	6	4	22	8	34	83	12	8	3	29	34



Garrett	Harford	Howard	Kent	Montgomery	Prince Georges	Queen Annes	St. Mary's	Somerset	Talbot	Washington County	Wicomico	Worcester	Total FY 2015	Cumulative FY88-15
			3										6	669
													0	47
													0	2
	2						2						8	867
						1		3			5	2	17	985
						2	1			1			7	524
	4	2		1			7			6	1		46	1,276
													0	11
										1			2	14
													0	1,690
	5	2	9		2	6				1			37	1,878
	5	3	13	1		7	1		1				80	4,883
1	1					7		4		3	7	2	50	992
	5					7			1				21	430
													0	2
			2										11	1,502
			1							1			19	194
													0	0
1	3					3	1			2			16	749
													0	50
			4	1	1								9	1,106
	1												9	1,186
	1	1								1	1		14	502
													0	61
													0	72
													0	90
2			1			5		2	1	1	6	1	44	2,238
													0	15
	2												2	45
								1					2	29
1							1			1			4	193
3	3				1		4			3			40	2,073
													1	28
8	32	8	33	3	4	38	17	10	3	21	20	5	445	24,403

SPECIAL PROJECT GRANTS

The Maryland Agricultural Water Quality Cost-Share Program receives special funds from the Chesapeake Bay Restoration Fund and Chesapeake Bay 2010 Trust Fund to finance highly valued best management practices included in Maryland's Bay milestone commitments. These include the Cover Crop Program and contract signing incentive payment for the Conservation Reserve Enhancement Program (CREP) along with portions of the Manure Transport Program and manure injection and incorporation grants.

COVER CROP PROGRAM

Maryland farmers participating in the 2014-2015 Cover Crop Program planted a record 475,560 acres of cover crops on their fields to control soil erosion, reduce nutrient runoff and protect water quality. This cover crop planting is the largest in Maryland history, exceeding the previous record of 430,000 acres planted in 2012.

The environmental benefits of planting cover crops on newly harvested fields in the fall are well documented. As they grow, cover crops protect water quality by recycling unused plant nutrients remaining in the soil from the preceding summer crop. Once established, cold-hardy cover crops work all winter to shield fields against erosion caused by wind, rain, snow and ice.

Collectively, the 475,560 acres of cover crops planted will prevent an estimated 2.9 million pounds of nitrogen, and 95,112 pounds of

COVER CROP PROGRAM 2014-2015

DISTRICT	CONTRACTS	FALL CERTIFIED ACRES	MACS PAYMENT
Allegany	8	744	\$ 49,457
Anne Arundel	28	3,777	170,673
Baltimore County	44	8,849	388,836
Calvert	19	5,529	227,814
Caroline	140	39,597	1,815,795
Carroll	126	25,700	1,361,548
Cecil	68	18,239	1,030,851
Charles	33	7,598	309,687
Dorchester	113	39,250	1,834,998
Frederick & Catoclin	200	31,219	1,581,372
Garrett	17	912	58,830
Harford	84	16,185	861,382
Howard	16	2,428	112,883
Kent	126	53,383	3,097,850
Montgomery	37	17,729	784,140
Prince George's	28	2,463	104,342
Queen Anne's	137	49,872	2,483,722
St Mary's	73	9,793	416,769
Somerset	51	20,673	868,574
Talbot	93	52,142	2,621,645
Washington County	66	10,300	564,064
Wicomico	82	25,003	1,473,979
Worcester	67	34,175	1,836,054
Total	1,656	475,560	\$24,055,265

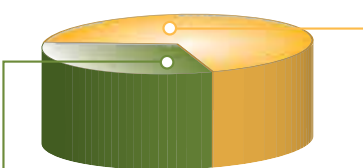
phosphorus from impacting waterways.

The department provides grants to farmers who plant small grains such as wheat, rye or barley on their fields following the fall harvest. Grants help offset seed, labor and equipment costs associated with planting cover crops. To help create diversity and give farmers more planting options, cover crop mixes were introduced during the 2014-2015 planting season.

Approximately 32 percent of the cover crops planted were harvested.

ACRES PLANTED IN COVER CROPS

68 percent = Traditional Cover Crops



32 percent = Commodity Cover Crops



This streamside buffer helps prevent sediment and nutrients from reaching a tributary of the Little Monacacy River in Montgomery County.

CONSERVATION RESERVE ENHANCEMENT PROGRAM

Restoring the health of Maryland’s streams is vital to the success of the Bay cleanup effort. Maryland’s Conservation Reserve Enhancement Program (CREP) is a federal-state partnership that pays landowners to take environmentally-sensitive cropland out of production for 10 to 15 years and plant streamside buffers, establish wetlands, protect highly erodible lands or create wildlife habitat.

The Maryland Agricultural Water Quality Cost-Share Program provides participating landowners with grants to establish conservation practices on environmentally-sensitive land that they have agreed to no longer till or graze. Special state funds are used to award a \$100/acre signing bonus for initial program enrollment or re-enrollment. In Fiscal Year 2015, the program provided landowners with \$305,214 in signing bonuses and \$94,393 in cost-share funds to install buffers, fences, watering troughs and other stream protection practices.

CREP PROJECTS COMPLETED BY DISTRICT | FISCAL YEAR 2015

DISTRICT	COMPLETED PROJECTS	MACS PAYMENT
Allegany	2	\$15,095
Baltimore County	1	823
Caroline	3	3,566
Carroll	9	25,114
Catoctin	2	11,839
Dorchester	15	19,236
Frederick	3	14,967
Kent	4	3,753
Total	39	\$94,393

Maryland farmers planted a record 475,560 acres of cover crops during the 2014-2015 planting season. It was the largest cover crop planting in Maryland history.

MANURE TRANSPORT

Phosphorus runoff poses a major threat to water quality in the Chesapeake Bay and its tributaries. While poultry litter and livestock manure make excellent fertilizers and soil amendments, their ratio of nitrogen to phosphorus creates challenges for farms with high phosphorus soils.

Transporting manure from farms with high soil phosphorus levels to areas that can use the resource safely is a key Bay milestone commitment and an important component of Maryland’s new Phosphorus Management Tool regulations.

For more than a dozen years, Maryland’s Manure Transport Program has been helping poultry, dairy, beef, and other livestock producers transport excess manure away from farms with high soil phosphorus levels. In Fiscal Year 2015, the Transport Program provided Maryland farmers with \$851,304 in grants to transport 167,237 tons of manure to approved farms and

MANURE TRANSPORT PROGRAM PAYMENT SUMMARY

FISCAL YEAR	ACTUAL TONS TRANSPORTED	MACS PAYMENT	POULTRY COMPANIES COST-SHARE PAYMENT
FY 1999	1,896	\$17,992	\$ 17,992
FY 2000	13,366	111,464	111,464
FY 2001	20,477	195,559	195,559
FY 2002	47,481	434,610	420,395
FY 2003	28,556	233,444	229,645
FY 2004	40,755	295,356	285,806
FY 2005	36,329	239,196	200,113
FY 2006	69,009	380,694	293,728
FY 2007	99,297	490,011	356,955
FY 2008	99,817	520,357	370,985
FY 2009	119,892	663,177	504,024
FY 2010	80,899	469,398	402,846
FY 2011	61,150	354,011	294,383
FY 2012	35,554	297,587	283,951
FY 2013	52,481	377,007	339,252
FY 2014	118,995	608,259	419,929
FY 2015	167,237	851,304	409,548
TOTALS	1,093,191	\$6,539,426	\$5,136,575

businesses—an increase of more than 40 percent over 2014. More than 31 percent of the manure was shipped to alternative use facilities outside of the watershed.

Delmarva poultry companies provided matching funds to transport poultry litter, bringing the total amount of financial support provided to \$1,260,852.



In 2015, the Manure Transport Program experienced a remarkable 40 percent increase in the amount of manure relocated.



Grants for manure injection and incorporation help farmers comply with Maryland's nutrient management regulations.

MANURE INJECTION AND INCORPORATION

To further protect water quality, Maryland's nutrient management regulations require farmers to inject or incorporate manure and other organic nutrient sources into the soil within 48 hours of application. This grant program helps farmers comply with Maryland's environmental requirements while recycling manure resources. Assistance is available to hire custom operators, rent or lease equipment, or offset operating costs associated with using secondary tillage equipment needed to incorporate or inject manure into the soil. Participation is limited to farmers who have not used eligible equipment for incorporation or injection of manure between October 15, 2007 and October 15, 2012.

In Fiscal Year 2015, the program provided 132 farmers with \$806,856 in grants to inject or incorporate manure and other organic products into 40,261 acres of cropland within 48 hours of application.

SOIL CONSERVATION DISTRICTS BRING MACS TO FARMERS

Maryland's 24 soil conservation districts—with technical guidance from USDA's Natural Resources Conservation Service—help farmers select the right best management practices for their farms, supervise their installation and construction, and develop maintenance plans to keep them in good working order. District staff help farmers calculate costs to install practices and apply for state and federal grant and loan programs. Best management practices are usually installed as part of a farm's overall Soil Conservation and Water Quality Plan. These plans are developed free of charge by district technical staff to help farmers identify, protect and enhance natural resources on their farms.

MARYLAND SOIL CONSERVATION DISTRICTS

Allegany	301-777-1747, ext. 3
Anne Arundel	410-571-6757
Baltimore County	410-527-5920, ext. 3
Calvert	410-535-1521, ext. 3
Caroline	410-479-1202, ext. 3
Carroll	410-848-8200, ext. 3
Catoctin	301-695-2803, ext. 3
Cecil	410-398-4411, ext. 3
Charles	301-934-9588, ext. 3
Dorchester	410-228-3733, ext. 3
Frederick	301-695-2803, ext. 3
Garrett	301-334-6950, ext. 3
Harford	410-838-6181, ext. 3
Howard	410-313-0680
Kent	410-778-5150, ext. 3
Montgomery	301-590-2855
Prince George's	301-574-5162, ext. 3
Queen Anne's	410-758-3136, ext. 3
St. Mary's	301-475-8402, ext. 3
Somerset	410-651-1575, ext. 3
Talbot	410-822-1577, ext. 3
Washington County	301-797-6821, ext. 3
Wicomico	410-546-4777, ext. 3
Worcester	410-632-5439, ext. 3



Maryland Department of Agriculture

Office of Resource Conservation

Conservation Grants Program
50 Harry S. Truman Parkway
Annapolis, MD 21401

mda.maryland.gov



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