



Chesapeake Bay Stewardship Fund

2008 Conservation Innovation Grants Program



The purpose of the Chesapeake Bay Conservation Innovation Grants program is to expand the collective knowledge about the most effective ways to engage working farms in protecting and restoring vital natural resources in the Chesapeake Bay region while sustaining agricultural profitability.

The Program is a partnership among the USDA Natural Resources Conservation Service and the National Fish & Wildlife Foundation and awarded \$5 million in 2008.

Project Title: Managing Poultry-Source Nutrient Delivery (MD)
Recipient: Caroline County Soil Conservation District

Foundation Misc. Federal Funds:	\$188,100
<u>Matching Funds:</u>	<u>\$194,280</u>
Total Project Costs:	\$382,380

Project Area: Caroline County, Maryland

The Caroline County Soil Conservation District will demonstrate innovative options to achieve nutrient load reductions from agricultural drainage systems and will be targeted to an area of the Upper Choptank River watershed with high rates of land applied poultry manure. The project seeks to determine the feasibility of reengineering agricultural drainage systems to maximize nutrient uptake and wildlife habitat benefits. A field scale application of Algal Turf Scrubber (ATS) technology will be evaluated to identify cost-effectiveness. The algal biomass produced by the ATS system will be evaluated as a potential biofuel feedstock and the biomass nutrient content will also be determined in order to quantify nutrient trading credits associated with ATS treatments. Overall maintenance costs and barriers to acceptance of this approach will be explored and the project team will develop management practice recommendations for drainage system managers and public officials.

Project Title: Switchgrass Environmental Benefits (MD)

Recipient: University of Maryland, Wye Research and Education Center

Foundation Misc. Federal Funds:	\$300,000
<u>Matching Funds:</u>	<u>\$400,000</u>
Total Project Costs:	\$730,000

Project Area: Chestertown, Kent County, Maryland

The Wye Research and Education Center will establish 80 - 100 acres of switchgrass in the Chester River watershed on five to ten different farms with the goal of having sufficient production capacity by 2011 to produce feedstock with an energy equivalent of approximately 40,000 gallons of heating oil. The project will evaluate the biomass production capacity, total solar energy capture potential, fuel characteristics, nutrient uptake rates, carbon sequestration rates, and wildlife habitat effects of switchgrass grown in buffer settings during the first three years of crop establishment. The project will also introduce and demonstrate the concept of perennial grass-based biofuel production to the local agricultural and conservation communities, and establish a production base for supplying a 1 million btu/hr heating system and explore options for utilizing switchgrass locally as a biofuel.

Project Title: Implementing the Bay Bank (DE, MD)

Recipient: Pinchot Institute for Conservation

Foundation Misc. Federal Funds:	\$450,000
<u>Matching Funds:</u>	<u>\$656,000</u>
Total Project Costs:	\$1,380,000

Project Area: Chesapeake Bay Watershed (States of Maryland and Delaware)

The Pinchot Institute will collaborate with national and regional experts to develop the Bay Bank, an innovative marketplace for ecosystem services that will connect private landowners in Maryland, Delaware, and, ultimately, the entire Chesapeake region to non-traditional markets such as forest conservation and carbon sequestration as well as traditional conservation programs. This project will produce real, measurable improvements to environmental quality in the Chesapeake watershed. The Bay Bank will enhance water quality and other environmental benefits by expanding stewardship practices that prevent nutrients from entering the Bay. This project will develop: a centralized, online marketplace that integrates multiple ecosystem service markets; clear and easily applied standards that harmonize and translate market requirements for landowners; verifiable protocols for connecting landowners to existing and emerging markets; protocols for determining landowner eligibility for traditional conservation programs based on spatial landowner generated information; a platform integrating a landowner registry with the Bay Bank; strategic and business plans for operation and management of the Bay Bank; and, first year pilot implementation of the Bay Bank.

Project Title: Manure Gasification Project (PA)

Recipient: Windview Farm

Foundation Misc. Federal Funds:	\$100,000
<u>Matching Funds:</u>	<u>\$118,171</u>
Total Project Costs:	\$218,171

Project Area: Port Trevorton, Snyder County, Pennsylvania

Windview Farm will install a hot water boiler gasification system to be fueled with poultry litter generated at the farm. Installation of the boiler will reduce the amount of poultry litter that is land applied to 110 acres of land by approximately 500 tons annually, which in turn reduces the phosphorus load distributed to the Chesapeake Bay watershed by 17.85 tons annually. The gasification unit will also help reduce the farm's Pennsylvania Phosphorus Index rate, and reduce the farm's use of petroleum-based heating oil. In addition to improving the water quality of the Chesapeake Bay Watershed, this project will reduce overall operating cost at the farm and save the farmer approximately \$30,000 in fossil fuel costs annually. The system is expected to also increase annual poultry production on the farm due to increased heat energy efficiency in poultry production barns. The farm is a valuable demonstration site because the farmer participates on the Conservation District Board of Directors for Snyder County and has helped other landowners in the district implement conservation practices on their farms.

Project Title: Phosphorus Control in Farm Waste Management (PA)

Recipient: Trout Unlimited

Foundation Misc. Federal Funds:	\$254,034
<u>Matching Funds:</u>	<u>\$255,654</u>
Total Project Costs:	\$509,688

Project Area: Mill Hall, Clinton County, Pennsylvania

Trout Unlimited will combine advances in the recovery and processing of mine drainage treatment wastes, or mine drainage residuals (MDRs), with on farm manure management for phosphorus stabilization. This technology will be demonstrated in the

West Branch of the Susquehanna Subbasin at a 2,100 acre 800 cow dairy farm in Clinton County. Project partners will incorporate iron-rich MDRs into a fully operational manure waste management system that treats approximately 8,000 tons of solid waste per year. The project will evaluate several approaches to determine which is most cost-effective practice and then will implement this selected practice a full time basis for one year at the project farm. By establishing the feasibility of phosphorus control using MDRs future nutrient management and resource recovery practices can be defined that integrate acid mine drainage remediation with manure management.

Project Title: Integrated Nutrient Management Program (PA)

Recipient: University of Pennsylvania

Foundation Misc. Federal Funds:	\$607,866
<u>Matching Funds:</u>	<u>\$953,943</u>
Total Project Costs:	\$1,561,809

Project Area: Lower Susquehanna Subbasin, Pennsylvania

The University of Pennsylvania will engage 25 - 30 small dairy operations in an Integrated Management Program (IMP) designed to improve farm productivity and reduce nutrient losses from approximately 7,500 acres of farmland in the lower Susquehanna River Basin. The project will involve coordinated teamwork between veterinarians, nutritionists, crop and nutrient management specialists, and farm economists to engage a select group of farmers in dairy nutrient use efficiency and whole-farm management techniques. This approach is expected to reduce the nitrogen and phosphorus content of manure during the life of the project by 490,000 pounds and 138,000 pounds phosphorus respectively. Project farms are also expected to achieve a 5-10 percent increase in the efficiency of milk production.

Project Title: Chesapeake Nutrient Neutral Fund

Recipient: Chesapeake Bay Foundation, Inc.

Foundation Misc. Federal Funds:	\$500,000
<u>Matching Funds:</u>	<u>\$1,276,250</u>
Total Project Costs:	\$1,776,250

Project Area: Chesapeake Bay Watershed

The Chesapeake Bay Foundation will apply the model of the burgeoning greenhouse gas offset market to water quality in the Chesapeake Bay watershed. The project partners will develop a fund for private invest in high quality nutrient pollution reduction projects. The project will represent a unique partnership between the Chesapeake Bay Foundation, the University of Maryland Mid-Atlantic Water Program, Forest Trends, the World Resources Institute, and Environmental Defense. Project partners will hire a fund manager to design the business plan and capitalize the fund, nutrient offset verification criteria will be developed to verify each individual offset, and fund dollars will be targeted to the most cost-effective nutrient reduction projects across the Chesapeake Watershed.

Project Title: Warm Season Grasses as Cash Crop for Farmers (VA)

Recipient: Virginia Polytechnic Institute and State University

Foundation Misc. Federal Funds:	\$750,000
<u>Matching Funds:</u>	<u>\$1,050,000</u>
Total Project Costs:	\$1,800,000

Project Area: State of Virginia

Virginia Tech will demonstrate the economic and environmental potential of perennial warm season grass (WSG) plantings as both buffers and whole-field plantings. Approximately 7,500 acres of WSGs will be planted under various management techniques and will be evaluated for environmental performance and for use as a value added agricultural commodity in the Chesapeake Bay watershed. The project will evaluate the cost-effectiveness of emerging markets for WSGs, such as; a sustainable biomass feedstock for bioenergy utilization in a local hospital, a low cost high performance bedding substitute for poultry operations, a forage substitute for farmers,

and suitability for carbon and nutrient credit generation. The project will buffer 75 miles of stream and result in an estimated 492,000 pound and 39,585 pound reduction in nitrogen and phosphorus application over the life of the project.

Project Title: Chesapeake Water Quality Initiative (MD, PA, VA)

Recipient: American Farmland Trust

Foundation Misc. Federal Funds:	\$650,000
<u>Matching Funds:</u>	<u>\$975,635</u>
Total Project Costs:	\$1,625,635

Project Area: States of Pennsylvania, Maryland, and Virginia

The American Farmland Trust (AFT) will conduct a multi-state, field-scale demonstration of an innovative, cost effective, market-based approach, for Enhanced Nutrient Management. The Enhanced BMP Challenge is a risk management tool developed by AFT, which is modeled on performance guarantees that cover potential economic losses from decreased yield when a farmer adopts new nutrient management practices. The proposed program will increase the number of farmers in Pennsylvania using this yield reserve guarantee system, initiate pilot programs in Maryland and Virginia, and integrate this approach with emerging state and federal conservation programs and water quality trading programs. Participating farmers will reduce between 200,000 and 270,000 pounds of nitrogen pollution from the watershed over the three years of the project.

Project Title: Cacapon Watershed Restoration Collaborative (WV)

Recipient: West Virginia University Research Corporation

Foundation Misc. Federal Funds:	\$650,000
<u>Matching Funds:</u>	<u>\$1,023,000</u>
Total Project Costs:	\$1,703,000

Project Area: Hampshire County, West Virginia

West Virginia University will employ a suite of practices and approaches not currently used in the Cacapon watershed of the Upper Potomac River Basin, including: streambank stabilization using natural channel design, higher rental rates on riparian

corridors, flexible riparian fencing techniques, as well as payments for habitat improvements such as forest and warm season grass riparian plantings integrated with pollinator strips. The project will target eight early adopters to implement demonstration areas that are anticipated to result in at least 5,000 linear feet of streambank stabilized and riparian re-vegetation completed, 30 acres of warm season grasses established, 15 acres of pollinator strips established with 8,000 trees and shrubs planted, 10,000 tons of sediments reduced, 260 pounds of nitrogen reduced, 46 pounds of phosphorous reduced and a 25 percent increase in the productivity of pastures and hayfields. These eight demonstrations will serve as the roots for a broader farmer-to-farmer whole-farm mentoring initiative. This innovative initiative is anticipated to result in at least 100 landowners exposed to innovative approaches, 10 outreach workshops, and 5 new projects to replicate this whole-farm approach and at least 15 farmers increasing profitability.

Project Title: Nitrogen Management During Corn Production (DE, MD)

Recipient: University of Delaware

Foundation Misc. Federal Funds:	\$550,000
<u>Matching Funds:</u>	<u>\$999,400</u>
Total Project Costs:	\$1,549,400

Project Area: Chesapeake Bay Watershed (States of Maryland and Delaware)

The University of Delaware will develop a performance-based nutrient management system for corn growers on the Delmarva Peninsula. This system will be designed to help corn growers fine tune nitrogen application rates and realize long-term decreases in nitrogen losses and increased profitability. With this three-year project, we plan to use remote sensing to sample 1,650 cornfields and 150 strip trials in the Maryland and Delaware region of the Chesapeake Bay watershed. Aerial images will be taken in early August to evaluate stress within these fields and these images will be used as a guide to take cornstalk nitrate samples in late August or early September. In late November and early December, reports will be prepared for each participating corn grower and consultant. In December and January, meetings will be conducted to provide overall summaries, show the impact of management histories on the observed results, and discuss the overall findings. In the second and third years of this project and where stalk nitrate concentrations have repeatedly been excessive, these growers will adjust their nitrogen management practices on a portion of their farms.