

## Chesapeake Bay-Friendly Horse Farm Project Final Report

Provided by Prince William Soil & Water Conservation District  
August 2010

### Background

We have been actively working with horse farm owners, teaching them about water quality and land stewardship with a targeted program beginning in 1999. This latest project in the evolution of our outreach program establishes the first horse farm under contract to be used as a model. The expertise gained in the past ten years has culminated in the "extreme makeover" of this farm using both innovative and tested Best



Management Practices that work for horse farms specifically. The farm owner has agreed in writing to maintain the established practices at her expense for a ten year period and to support our outreach goals. The farm is being used to educate, motivate, and inspire improved land management techniques.

### Partners

The project proposal included 19 partners and supporters. More than 35 new supporters joined the project through August 15, 2010. Their combined products, services, expertise, and direct funding are valued at more than \$140,000.00.

### Publicity

We are aware of 30 local, regional, and state news articles, in print and online, covering the project through August 15, 2010. Information was also provided to Virginia Farm Bureau for a television program. Permanent signage has been placed at the farm and more there are more than 30 pages of information on the project on our website. The signs and



website information provide for ongoing publicity.

## Water Quality

Data was collected on the farm in both the “before” and “after” conditions. Soil loss before the project was estimated at 0.95 tons per acre per year. After the installation of BMPs and improved pasture management, soil loss was reduced to 0.10 tons/acre. The Clean Water Project



**Rainfall simulator**

conducted a stream assessment of the “before” and “after” conditions of the stream channel and buffer that could be used for additional comparisons over a longer period of time. Rainfall runoff was measured by Virginia Tech’s Biological Systems Engineering.



**Stream assessment**

The volume of runoff in the “after” conditions

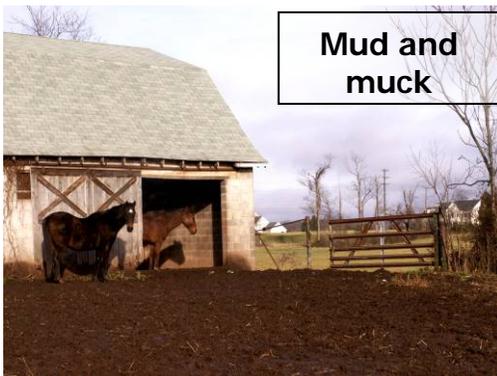
decreased by 76% with an 80-92% decrease in nutrient and sediment levels in the runoff.

## Innovation

The Best Management Practices prescribed for the farm are all horse-farm specific. Alternatively, government specifications for agricultural practices are generally designed for other types of livestock, larger acreages, and assume access to expensive farm equipment. The fencing types, water troughs, confinement paddock sizing and construction, manure management system, heavy use area stabilization products, and forage mix were all selected to be horse-friendly and to be managed by owners with limited acreage, time, money, and machinery.



**Solar O2 Composter funded by Fairfax Water**



**Mud and muck**

## Horse Health

Muddy turnout can cause injuries, as well as fungal and bacterial infections. Drinking potentially polluted surface water can cause disease. When searching severely overgrazed pastures for forage, horses are more likely to eat toxic plants. Over application of un-composted manure can lead to problems associated with flies and parasites.

The overall development of the management system

### All-weather footing



utilized in the project provides the horses with safe, secure turnout in a variety of weather conditions, access to free choice forage (hay or pasture, as appropriate), and a consistent source of clean water. The O2 Composting System kills fly and parasite eggs in the manure.

### Chore-efficiency



Manual water trough

Most of the horse owners that we work with have full-time employment off the farm. Conservation-oriented management strategies, including the layout and specific products, used on the farm are chore-efficient.

### Auto trough



2009.08.14

### Aesthetics

The appearance of the farm may or may not be a strong force in motivating the farmer to change management practices. In our project, the improvement in the impression of the farm has been an expected side effect that the owner, horse community, and neighbors have appreciated.

### "Green" acres



2010.05.19



Overgrazed

### Statewide Education

Presentations on the project were offered through all the soil and water conservation districts in Virginia. Seminars based on the project were offered at nine locations in the state, including colleges with equestrian programs.

### Future equine professionals



2010.03.19

### Local Seminar and Farm Tours

In January 2010, one local seminar was held at the Virginia Tech MARE Center showcasing the project. As of August 15th nine tours of the farm have been offered,



Farm tour

2010.07.17

beginning last summer, and additional tours are being scheduled —by popular demand. The farm will continue to be used for tours and holding field days and workshops for the next 10 years.

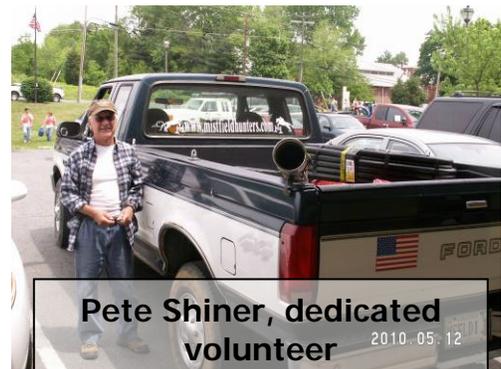
**Expenditures – from DCR grant funds**

Personnel	\$ 34,077.56
✓ Staff time	
Fringe	\$ 8,009.35
✓ Staff benefits such as Virginia Retirement System	
Travel	\$ 3,062.88
✓ Local travel associated with the project as well as travel expenses for statewide education	
Supplies	\$ 15,906.04
✓ Advertising, public reports	
✓ Local seminars and outreach	
✓ Hay feeders, lime, seed, fertilizer, fencing, and water troughs	
Contractual	\$ 13,445.00
✓ Virginia Tech rainfall simulator assessment	
✓ Engineering and other consultations	
Construction	\$ 44,891.16
✓ Fencing, watering system, manure composters, sacrifice area paddocks, roof runoff management, erosion controls, bat house, fly predators	
Total	\$ 119,391.99



**Matching Contributions – from partners**

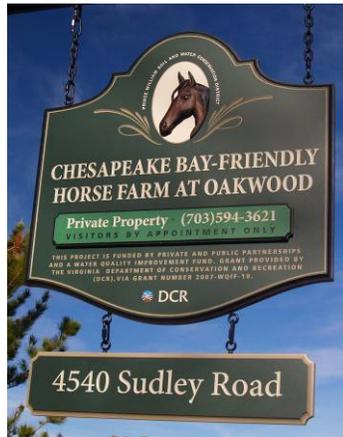
Personnel	\$ 77,254.49
✓ Staff time and contributions of partners, incl. volunteers	
Fringe	\$ 0
Travel	\$ 78.10
✓ Local travel associated with the project as well as travel expenses for statewide education	
Equipment	\$ 0
Supplies	\$27,126.07
✓ Advertising, public reports	
✓ Local seminars and outreach	
✓ Hay feeders, lime, seed, fertilizer, fencing, and water troughs	
✓ Bluestone dust gravel	
Contractual	\$ 35,896.62
✓ Clean Water Project stream assessment	
✓ Legal contacts	
✓ No-till seeding	



✓ Engineering and other consultations	
Construction	\$ 1,752.88
✓ Fencing, watering system, manure composter, sacrifice area paddocks, roof runoff management, erosion controls, bat house, fly predators	
Total	\$142,108.16

### Conclusion

The goal of the project was to create a model horse farm to be used for education, outreach, and research



to benefit local water quality and waterways throughout the Chesapeake Bay. Horse owners that visit the farm, and even those who simply read about the farm on the internet or in publications, are increasing their understanding of their contribution to non-point source pollution and, even more importantly, the actions they can take to lessen negative impacts.



*This project is leading the way to a healthier Chesapeake Bay, one horse farm at a time.*



This project received funding from the Virginia Water Quality Improvement Fund provided by the Virginia Department of Conservation and Recreation (DCR), via grant number 2007-WQIF-19.



This project received funding from Fairfax Water's Water Supply Protection and Education Grant.

## **Facts about horses and the Chesapeake Bay**

"The leading threat to the health of the Chesapeake Bay is excess nitrogen and phosphorus pollution that destroys habitat and causes fish kills. Top sources of these pollutants include agriculture, sewage treatment plants, runoff from urban and suburban areas, and air pollution from automobiles, factories, and power plants. Other threats to the Bay's health include sprawl, toxic pollution, and poor fishery management."

~ Chesapeake Bay Foundation

In 2006, over 132,300 equines resided in Virginia counties within the Chesapeake Bay watershed. That's over 61% of the total equines within the state. This number has likely grown significantly since 2006.

~ Equine Survey Report 2006; Reported by the Virginia Field Office of the National Agricultural Statistics Service; Chesapeake Bay Foundation provided maps of Virginia counties in the Chesapeake Bay watershed

An average 1,000 lb. horse produces 8.2 tons/year of manure annually. In the Virginia portion of the Chesapeake Bay watershed, the 132,300 equines produce approximately 1 million tons of manure per year. If 10% of the produced manure is not managed properly, excess nutrients from 100,000 tons of this manure can wash into our local waterways which drain into the Chesapeake Bay.

~ Prince William Soil & Water Conservation District with 2006 Equine Survey Report data

In 2006, equine operations in Virginia contributed approximately 783 million dollars to the economy. This included farrier fees, boarding fees, equipment purchases, hay, grain, bedding, utilities, travel and lodging, advertising expenses, maintenance repair expenses, taxes, etc.

~ Equine Survey Report 2006; Reported by the Virginia Field Office of the National Agricultural Statistics Service

## **Our Partners**

### **Blue Ribbon Partners (\$100,000+ valued contribution)**

Virginia Dept. of Conservation & Recreation

### **Red Ribbon Partners (\$10,000+ valued contribution)**

The Clean Water Project of Virginia Waters and Wetlands, Inc.

Crawford Fencing

Fairfax Water

Luck Stone Corporation

Prince William Soil and Water Conservation District

Pete Shiner, Mistfield Farm

### **Yellow Ribbon Partners (\$5,000+ valued contribution)**

Angler Environmental

### **White Ribbon Partners (\$1,000+ valued contribution)**

CFC Farm & Home Center

Wally Covington, Prince William County, Brentsville District Supervisor

Robin Lancaster, Blue Top Farm

Martin Nohe, Prince William County, Coles District Supervisor

John Stirrup, Prince William County, Gainesville District Supervisor  
Kencove Farm Fence Supplies  
Virginia Cooperative Extension  
Yankey Farm Service

**Additional Supporters Designated**

- Affordable Farm Services, Inc.
- Averett University
- B&R Contracting and Fencing
- Bar-Bar-A Horse Drinker
- Chesapeake Bay Foundation
- Clinch Valley SWCD
- Ducks Unlimited
- Holston River SWCD
- Horses for Clean Water
- Lonesome Pine SWCD
- Lowes, Gainesville
- Manassas Seamless Gutter Supply
- Maryland Horse Outreach Workgroup
- Mountain SWCD
- Mountain Castles SWCD
- Natural Bridge SWCD
- Nelson Manufacturing
- Nokesville Horse Society
- Northern Virginia Coalition of Equestrian Organizations
- O2 Compost
- Prince William County, Watershed Management
- Prince William Service Authority
- R.D.B. Trucking, Inc.
- Robert E. Lee SWCD
- Scott County SWCD
- Stable Grid System
- Southern States Cooperative
- Leslie Sturges, Bat Educator
- Sustainable Stables
- Sweet Briar College
- Theros Equipment Rentals
- Upper James Resource Conservation and Development Council
- USDA Natural Resources Conservation Service
- Virginia Association of Soil and Water Conservation Districts
- Virginia Dare SWCD
- Virginia Department of Agriculture and Consumer Services
- Virginia Forage and Grassland Council
- Virginia Tech – Biological Systems Engineering
- Virginia Tech – MARE Center