

## **Berks County Agricultural BMP Implementation**

### **GROWING GREENER PROJECT #SC160031**

Agricultural Best Management Practices (BMP's) were implemented on a dairy operation in the headwaters of four watersheds located in Berks County, Pennsylvania. The Agricultural BMPs reduced sediment and nutrient pollution to surface waters within the Delaware River Watershed.

#### **Project Results:**

- Construction of a 60' x 40' x 6' dry stack manure storage and 14' x 125' circular concrete storage
- Over 11,300 sq. ft. of heavy use area protection & animal walkway with roofs and cover, curbs, and safety fencing
- Installation of manure scrap-offs and manure transfer lines to divert milk waste water to the liquid manure storage
- Construction of upslope diversion and stormwater basin to divert clean water around barnyards and ACA's
- Installation of 500 ft. of barnyard gutter, downspout, and 500 ft. of underground outlet to keep clean water clean
- Development of an NRCS 590 Comprehensive Nutrient Management Plan for 600 acres
- Conservation Plans and implementation on 588.1 acres of cropland, and 5.6 acres of pasture land

<b>Project Pollutant Load Reductions</b>	<b>Nitrogen (N) lbs./yr.</b>	<b>Phosphorus (P) lbs./yr.</b>	<b>Sediment (S) T/yr.</b>
	<b>21,526.0</b>	<b>5,164.0</b>	<b>1,857.0</b>



*[Before] Operation has limited manure storage. Operation daily hauls manure even during winter months.*



*[After] Completion of Animal Heavy Use Area and 60' x 40' x 6' dry stack manure storage. Storage provides 4-6 mo. Capacity*

#### **Project Partners:**

Berks County Conservation District (BCCD), USDA Natural Resource Conservation Service (NRCS), Berks Nature, Shantz Family (Show Top Farms).

#### **Project Cost:**

A total of \$231,486.00 was allocated by the Growing Greener Grant program, with a \$373,619.00 cash match contributed by USDA-NRCS, and additional \$7,500.00 from Berks Nature. The total project cost was \$616,605.00.

#### **Lesson Learned:**

Inter-agency and cooperative partnerships are critical to allocate and leverage funds to implement BMPs in agricultural priority areas. Collaborative efforts expand public funding and ultimately reduce sediment and nutrient pollution to headwater tributaries of four high quality or exception value Delaware River watersheds.



## Dennis Bross Farm BMP Implementation

### GROWING GREENER PROJECT #SC160157

Agricultural Best Management Practices (BMP's) were implemented on a dairy operation on Meck, Crosskill, and Little Swatara Creeks, Berks County, Pennsylvania. The Agricultural BMPs reduced sediment and nutrient pollution to surface waters within the Chesapeake Bay Watershed.

#### **Project Results:**

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- Construction of a 148' x 12' x 8' rectangular under barn manure storage and 12' x 82' circular concrete storage.
- Installation of 2,500' of streambank fencing and 1 agricultural stream crossing, protecting 0.5 acres of existing forest riparian buffer and creating 0.5 acres of herbaceous riparian area.
- Over 5000 sq. ft. of heavy use area protection with roofs and cover, curbs, or 4' walls.
- Implementation of 3,525 sq. ft. of Animal Walkways and Trails with livestock exclusion fencing.
- Installation of 200 ft. of barnyard gutter, downspout, and 250 ft. of underground outlet to keep clean water clean.
- Development of an NRCS 590 Comprehensive Nutrient Management Plan on 142 acres.
- Conservation Plans and implementation on 117.7 acres of cropland, and 16.7 acres of pasture land.

Project Pollutant Load Reductions	Nitrogen (N) lbs./yr.	Phosphorus (P) lbs./yr.	Sediment (S) T/yr.
	<b>10,494.0</b>	<b>1,926.0</b>	<b>628.0</b>



*BEFORE: Severe stream degradation from unrestricted livestock access*



*AFTER: Livestock exclusion fencing with a riparian buffer protects streambanks and filters pollutants.*

#### **Project Partners:**

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Berks County Conservation District (BCCD), USDA Natural Resource Conservation Service (NRCS), Chesapeake Bay Special Projects Program, Dennis Bross Farm.

#### **Project Cost:**

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A total of \$115,225.00 was allocated by the Growing Greener Grant program, with a \$220,308.00 cash match contributed by USDA-NRCS, and additional \$117,106.81 of non-cash match from Chesapeake Bay Special Project Program. The total project cost was \$452,639.81.

#### **Lesson Learned:**

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Inter-agency and cooperative partnerships are critical to allocate and leverage funds to implement BMPs in agricultural priority areas. Collaborative efforts expand public funding and ultimately reduce sediment and nutrient pollution to headwater tributaries within the Chesapeake Bay watershed.

## Creekside Stables Erosion BMP Implementation

### GROWING GREENER PROJECT #SC160163

Agricultural Best Management Practices (BMP's) were implemented on an equine boarding operation on a tributary to Muddy Creek, Berks County, Pennsylvania. The Agricultural BMPs reduced sediment and nutrient pollution to surface waters within the Chesapeake Bay Watershed.

#### Project Results:

- Construction of a 20' X 24' X 6' roofed manure stack pad, providing 4 – 6 months of storage.
- Installation of 1400' of streambank fencing along a UNT of Muddy Creek (HQ-TSF).
- Construction 18,000 sf of equine dry lots and heavy use area protection.
- Installation of over 1600' of livestock pipeline.
- Implementation of a prescribe grazing plan, with the installation of 6 livestock watering facilities including 4 frost proof troughs and 2 portable troughs with hydrants.
- Construction of 5500' sq. feet of access road.
- Installation of 825' of equine dry lot confinement fence and gates.

Project Pollutant Load Reductions	Nitrogen (N) lbs./yr.	Phosphorus (P) lbs./yr.	Sediment (S) T/yr.
	<b>2,021</b>	<b>368</b>	<b>260</b>



*Before – Equine unstable feedlot with uncollected manure*



*After – Roofed manure stacking pad (not picture liquid manure storage)*

#### Project Partners:

Berks County Conservation District (BCCD), USDA Natural Resource Conservation Service (NRCS), Pennsylvania Association of Conservation Districts (PACD), Creekside Stables.

#### Project Cost:

A total of \$36,365.00 was allocated by the Growing Greener Grant program, with a \$31,743.87 cash match contributed by USDA-NRCS, and additional \$5,250.00 of non-cash match from CDFAP special projects. The total project cost was \$73,359.37.

#### Lesson Learn:

Inter-agency and cooperative partnerships are critical to allocate and leverage funds to implement BMPs in agricultural priority areas. Collaborative efforts expand public funding and ultimately reduce sediment and nutrient pollution to headwater tributaries within the Chesapeake Bay watershed.