

Chesapeake Bay Foundation (CBF)
Conservation Innovation Grant, "Innovative Ways to Increase Ag BMP's"
69-3A75-9-138
Final Report
October 29, 2013

Description of Project Activities

The Conservation Innovation Grant "Innovative Ways to Increase Ag BMP's" was a collaborative approach to comprehensive natural resource conservation on farms in northeastern Pennsylvania. The foundation for this program was incentivizing wide forested riparian buffers in combination with additional conservation practices on the farm to address the most critical resource concerns.

CBF field specialists worked closely with local conservation partners to identify farms in need of planning, technical and financial assistance, and forested riparian buffers. Once the needs were identified, CBF and local partners worked to ensure that all farms had Comprehensive Nutrient Management plans by leveraging assistance from the Bradford County Conservation District (BCCD) and the Natural Resources Conservation Service (NRCS) as well as agricultural consultants to maximize the funding provided through this grant.

In addition to helping farmers obtain the necessary plans, CBF worked with BCCD and NRCS to facilitate the survey, design, and installation of BMPs needed for EQIP, CREP CP22, and additional BMPs funded through this program. The opportunity for lower cost, non-structural approaches to nutrient and sediment runoff from Animal Concentration Area's (ACA) was considered on many farms.

This initiative sought to utilize and leverage existing federal cost share conservation programs in all cases to put conservation practices on the ground. Additionally, the partners worked with farmers to utilize the PA REAP program for BMP expenses incurred above what was covered through cost share funding.

The feasibility of utilizing nutrient credit trading was assessed on a subset of the farms (see attached "CBF Bradford County Trading Assessment Report").

The potential for permanently protecting the buffer through the Farmland Preservation Program was also assessed (see attached report).

Results

Through this initiative CBF worked directly with 41 farmers to implement forested riparian buffers, agricultural BMPs, and obtain necessary plans. Runoff controls for Animal Concentration Areas were implemented on 29 farms (6 of which were considered “innovative”), 219 BMPs were installed on farms, 36 miles of forested buffer were planted on 430 acres, and 28 Comprehensive Nutrient Management Plans developed. In addition, the majority of farms in the program are now fully compliant with State and Federal requirements for farms. Those that have not reached full compliance are committed through this initiative and the CBF landowner agreement to peruse adequate funding to address needs that are not currently met. These farms are in a strong position to compete for funds as their planning needs have already been met. All farms have also agreed to increased buffer maintenance to ensure the success of the forested buffers. Base funding totaled over \$1 million, but the project leveraged significant additional federal and state funding that, taken together, increased water quality benefits and cost effectiveness.

| <i>period</i> | <i># landowners/ farms under agreement</i> | <i># of BMPs total</i> | <i># of barnyard/ animal concentration areas</i> | <i># of miles of riparian forest buffers</i> |
|------------------------|--|------------------------|--|--|
| <i>Final completed</i> | <i>41</i> | <i>219</i> | <i>29</i> | <i>36</i> |
| <i>Total promised</i> | <i>“roughly 36”</i> | <i>unspecified</i> | <i>20*</i> | <i>25</i> |

Provide the following in accordance with the Environmental Quality Incentives Program (EQIP) and CIG grant agreement provisions:

1. A listing of EQIP-eligible producers involved in the project, identified by name and social security number or taxpayer identification number;

During this project the following landowners have signed agreements:

| | |
|---|--------------------|
| <i>Daniel Abell</i> | <i>185-50-5624</i> |
| <i>Paul Hottle</i> | <i>181-50-1731</i> |
| <i>Scott Driscoll</i> | <i>196-38-4287</i> |
| <i>Lawrence G Doud Family Farm, LLC</i> | <i>27-2491667</i> |
| <i>Ronald Forbes</i> | <i>175-42-5799</i> |
| <i>Albert J. Bryniarski</i> | <i>177-32-4862</i> |

| | |
|--|-------------------------------------|
| <i>Mary Buddendorf & James McCoy</i> | <i>196-34-2998/ 180-66-4541</i> |
| <i>Sechrist Farms</i> | <i>20-3406229</i> |
| <i>Kelly Edward</i> | <i>175-42-3091</i> |
| <i>Joseph Conboy</i> | <i>174-64-8575</i> |
| <i>Glenn Gorell</i> | <i>144-52-9970</i> |
| <i>JohnWallace</i> | <i>199-38-8258</i> |
| <i>Patrick J & Timothy E Lamb</i> | <i>23-2793788</i> |
| <i>Frank Scholz</i> | <i>025-30-1370</i> |
| <i>Leon P Stolzfus</i> | <i>177-66-4505</i> |
| <i>Brian Driscoll</i> | <i>175-68-4938</i> |
| <i>Thomas Dayton</i> | <i>203-52-1528</i> |
| <i>Brian E Harris</i> | <i>23-2836413</i> |
| <i>Loren Roy</i> | <i>183-30-3728</i> |
| <i>Stephen Saxton</i> | <i>079-52-3951</i> |
| <i>Green Island Farms</i> | <i>27-2096623</i> |
| <i>RichardCottrell</i> | <i>206-34-8573</i> |
| <i>Paul Hayduk</i> | <i>167-44-8925</i> |
| <i>Kevin L Williams</i> | <i>173-48-6841</i> |
| <i>Robert Longmore</i> | <i>170-44-3616</i> |
| <i>Paul K Robbins</i> | <i>184-52-9596</i> |
| <i>John M Sullivan</i> | <i>180-40-3597</i> |

2. The dollar amount of any direct or indirect payment made to each individual producer or entity for any structural, vegetative, or management practices. Both biannual and cumulative payment amounts must be submitted.

| | |
|---------------------------|--------------------|
| <i>Leon P Stolzfus</i> | <i>\$16,320.00</i> |
| <i>Brian Driscoll</i> | <i>\$15,120.00</i> |
| <i>Thomas Dayton</i> | <i>\$21,840.00</i> |
| <i>Brian E Harris</i> | <i>\$2,339.84</i> |
| <i>Loren Roy</i> | <i>\$10,800.00</i> |
| <i>Stephen Saxton</i> | <i>\$13,080.00</i> |
| <i>Green Island Farms</i> | <i>\$9,790.00</i> |
| <i>RichardCottrell</i> | <i>\$4,800.00</i> |
| <i>Paul Hayduk</i> | <i>\$14,640.00</i> |
| <i>Kevin L Williams</i> | <i>\$3,480.00</i> |

| | |
|--|--------------------|
| <i>Robert Longmore</i> | <i>\$5,760.00</i> |
| <i>Paul K Robbins</i> | <i>\$24,000.00</i> |
| <i>John M Sullivan</i> | <i>\$16,440.00</i> |
| EARLIER PAYMENTS: | |
| <i>Daniel Abell</i> | <i>\$20,520.00</i> |
| <i>Paul Hottle</i> | <i>\$4,320.00</i> |
| <i>Scott Driscoll</i> | <i>\$22,920.00</i> |
| <i>Lawrence G Doud Family Farm, LLC</i> | <i>\$24,000.00</i> |
| <i>Ronald Forbes</i> | <i>\$5,520.00</i> |
| <i>Albert J. Bryniarski</i> | <i>\$8,016.00</i> |
| <i>Mary Buddendorf & James McCoy</i> | <i>\$4,800.00</i> |
| <i>Sechrist Farms</i> | <i>\$10,320.00</i> |
| <i>Kelly Edward</i> | <i>\$10,920.00</i> |
| <i>Joseph Conboy</i> | <i>\$24,000.00</i> |
| <i>Glenn Gorell</i> | <i>\$14,520.00</i> |
| <i>JohnWallace</i> | <i>\$4,699.99</i> |
| <i>Patrick J & Timothy E Lamb</i> | <i>\$24,000.00</i> |
| <i>Frank Scholz</i> | <i>\$6,480.72</i> |

3. A self-certification statement indicating that each individual or entity receiving a direct or indirect payment for any structural, vegetative, or management practice through this grant is in compliance with the adjusted gross income (AGI) and highly-erodible lands and wetlands conservation (HEL/WC) compliance provisions of the Farm Bill.

The self-certification form required for NEW persons listed in #2 above are attached (not those listed as "earlier, for whom this information was provided earlier).

Potential for Transferability of Results

The model approach utilized through this grant of incentivizing the use of CREP forested buffers to drive additional implementation of agricultural BMPs and secure necessary plans for farms has proven to be hugely successful. This approach has been well received by farmers who are able to address all of their critical needs through one comprehensive program offered by a collaborative partnership of public and private conservation professionals.

For farmers, the benefits of this approach are many. Through this model, farmers were able to obtain Comprehensive Nutrient Management Plans. These plans not only ensure that farms are in compliance with state laws, but they provide a

framework for what practices are needed to remain in compliance with state laws as well as specific guidance on nutrient management. It is critical that farmers not only have a plan on the shelf, but that they are equipped with the information necessary to make management decisions on their farms that will benefit natural resources, farm productivity, and long term stewardship of the land.

Through this program, farmers installed forested riparian buffers through CREP which provided cost share on the installation of the trees, livestock exclusion fence, stream crossings, and livestock watering systems, in addition to paying rent on the land taken out of production. EQIP funding was utilized to improve barnyards, install manure storage, and a long list of other agricultural BMPs that improved water quality on the farm, as well as downstream while also improving herd health, farm productivity, and resource conservation.

Conclusion

With more demand for limited conservation funds than can be accommodated with existing programs in northeastern PA, this initiative has demonstrated that public funds for farm conservation can generate the maximum benefit for water quality and resource conservation. This initiative has proven that farmers will willingly install wide CREP forested buffers in order to rank high enough for federal EQIP funding to address other conservation needs on the farm.

The ability to replicate this approach throughout the state offers a tremendous opportunity for farmers, federal and state conservation agencies, and the general public. This model would maximize conservation funding through the expectation that where needed, forested buffers are a requirement to receive any state or federal conservation funding. The benefits are many: increased farm productivity and sustainability, improved water quality and herd health, and enhances stewardship of natural resources.

CBF Bradford County Trading Assessment Report

Nutrient Credit Trading provides an opportunity for point and nonpoint sources that exceed their environmental obligations to generate pounds of offsets that can be traded to others for NPDES permit compliance. The Pennsylvania nutrient credit trading policy has been in effect for the past six years. Even though Pennsylvania has recorded more point to non-point source nutrient credit trades than any other state in the union, it is still regarded in most circles as immature and fledgling. This critique of the credit trading program is driven by low demand by point source buyers and a low amount of aggregated credits on the non-point source side. This assessment of Bradford County farms is a snap shot of operations that could bundle their credits together for sale in the next Water Year compliance period.

Red Barn Consulting, Inc (RBC) conducted on site assessments of ten (10) farms located in Bradford County, Pennsylvania. Assessments were completed on farming operations provided by the Bradford County Conservation District and the Chesapeake Bay Foundation. All ten of the assessed operations had a proven track record of conservation, and were meeting baseline compliance as required by Pennsylvania Department of Environmental Protection (DEP). Once baseline compliance is achieved, activities above and beyond such baseline result in tradable credits. The two main components of baseline compliance: an approved nutrient management plan and a fully implemented conservation plan.

There were a variety of credit generating Best Management Practices (BMP's) found on the 10 Bradford County operations. Continuous No Till Cropping, Cover Crops, Precision Grazing, and Riparian Buffers were all credit generating practices found. In total there were 32,107 pounds of nitrogen credits generated by BMP's on these operations on an annualized basis. The final credit calculations were based upon the nitrogen reduction calculator developed by WRI and approved by DEP on August 24, 2007. The annual credit generation period is the Water Year compliance period that starts October 1 and ends September 30th of the following year.

In order for these credits to be marketed to a buyer they must first be certified by the Department of Environmental Protection. The credit calculations and baseline compliance information has been sent to DEP for certification approval. Once the credits are certified they must be individually verified to insure compliance with the policy. These credits will then be marketed through the PennVest nutrient credit exchange. This exchange acts as a clearing house for credit transactions within the Commonwealth. Credit certifications will sunset in Water Year 2015. At that time a new calculation methodology will be required by DEP for the associated Best Management Practices. At that time baseline compliance standards may also be enhanced to better align with the Chesapeake Bay TMDL.

| County | Last Name | First Name | Address | City, State, Zip | Phone # | Interested in Nutrient Trading | Assessment Completed | Nutrient Management Plan | Conservation Plan | Baseline Compliance Met | Credit BMP's | Annual Nitrogen Credits |
|----------|-------------|------------|------------------------|--------------------------|---------------------------------|--------------------------------------|-------------------------|-----------------------------|----------------------|-------------------------------|-----------------|----------------------------|
| Bradford | Bryniarski | Albert | 500 Merry Go Round Rd | Rome, PA 18837 | 570-247-7502 | X | YES | Yes | Yes | Yes | PG, 35' Buffer | 437 |
| Bradford | Gorrell | Glen | 392 Woods Rd | Milan, PA 18831 | 607-738-9092 | X | YES | Yes | Yes | Yes | CNT, CC, Buffer | 9572 |
| Lycoming | McCoy | Jim | 2938 Woodley Hollow Rd | Montoursville, PA 17754 | 570-435-2742 | X | YES | Yes | Yes | Yes | CNT, CC, Buffer | 1578 |
| Bradford | McNeal | Ralph | 1549 McNeal Rd. | Towanda, PA 18848 | 570-265-8801 | X | YES | Yes | Yes | Yes | CNT, CC, | 2657 |
| Bradford | Harris | Brian | 3634 Locust Rd | Milan, PA 18831 | 570-596-3077 | X | YES | Yes | Yes | Yes | CNT, CC, Buffer | 1697 |
| Bradford | Houseknecht | William | 123 Knecht-Knoll Lane | Col. Cross Rds, PA 16914 | (570)297-0185 | X | YES | Yes | Yes | Yes | CNT, CC, Buffer | 6506 |
| Bradford | Nolt | Scott | 1766 E CANTON RD | Canton, PA 17724 | (570)673-4977 (570)220-5500C | X | YES | Yes | Yes | Yes | 35' Buffer | 856 |
| Bradford | Sechrist | Jeffrey | 4520 Rt 414 | Canton, PA 17724 | 570-506-1378 Tylers Cell | X | YES | Yes | Yes | Yes | CNT, CC, Buffer | 4685 |
| Bradford | Paul | Robbins | 1859 Oak Hill Rd | Ulster, PA 18850 | 570-596-4483 | X | YES | Yes | Yes | Yes | CC, Buffer | 890 |
| Bradford | Roy | Loren | 458 Royal Lane | Gillett, PA 16925 | 570-549-3985 | X | YES | Yes | Yes | Yes | CNT, PG, Buffer | 3229 |

Options for Permanently Protecting Riparian Buffers
relating to
the Pennsylvania Farmland Preservation Program
from
A Bradford County Perspective

In recent years, conservation professionals have explored various options to provide permanent protection of riparian buffers that have been, or are planned to be, established on privately-owned property through various public and private efforts. To date, finding suitable mechanisms and methodologies for such protection has been challenging. The following is an attempt to put forth some of the observed explorations and challenges of enabling permanent riparian buffer establishment on lands slated to be or enrolled within Pennsylvania's Farmland Preservation Program.

For the sake of organization, discussion is broken down into general categories which together may be applied to many of the options and concerns routinely encountered when furthering riparian buffer protection, such as landowner willingness, levels or degrees of protection, and monitoring and enforcement methods and abilities.

IDENTIFICATION OF WILLING LANDOWNERS

Since a vast majority of riparian areas in Pennsylvania are privately owned, the most essential step toward enabling permanent protection of riparian buffers (and other conservation values) is obviously finding a willing landowner. Most landowners cherish their individual property rights and so are unwilling or wary toward allowing outside party control over the management of their property, especially in perpetuity. In perspective however, there is a notable backlog of applicants and landowners willing to ease their land through the Farmland Preservation Program (entailing more than 40 farms in Bradford County alone); well beyond that which the Program can enable, given its current resources.

This willingness and mutual intent between the landowner and easement-holder (Grantor and Grantee) to permanently maintain the farms integrity and associated values (which a family may have spent generations to build and maintain) is regularly encountered and within the "spirit" and intent of Pennsylvania's Agricultural Conservation Easement. While traditional development is largely restricted therein, agricultural development is not. One noteworthy exception is natural gas development, which the Agricultural Conservation Easement permits at any scale. This is particularly relevant in the Marcellus shale region where such allowance may bridge or win over landowner "buy-in" for a majority of perspective landowners or perhaps falling short of what might be deemed permanent riparian area protection or the expectation of relevant protection by a minority of landowner accounts.

Due to recent natural gas development and associated trends within this region (with increasing estimates of income and production windfalls), there is notably increased reluctance by landowners to enter into easements (or other agreements, contracts, and the like) containing restrictions, obligations or conditions which may cause potential conflict with or prohibitions against gas development activity. Exacerbated by ill sentiment and mistrust toward those looking for some land use or related service arrangement, this has been spurred by the many encounters property owners have had with speculators and business representatives through the “gas boom” of the past 5 years; where promises and contract clauses frequently fall short of property owner expectations and understanding.

While gas production and income potentially represent very large sums, against which, a vast majority of landowners want little or nothing to chance, there are a select minority who place certain conservation or related values above gas revenue. Emphasis could be continued toward identifying this group and protecting riparian buffer through traditional means.

Another factor influencing public and Grantor trust and acceptance toward such proposals in Bradford County, relates to Agricultural Conservation Easements held (at least in part) by the USDA Natural Resource Conservation Service as a Grantee through the Farm and Ranchland Protection Program (FRPP). In this instance, the federal addendum, made part of the states’ easement (at least through 2010) contained wording specific to “Mining and Drilling”: whereby *“oil and gas, or the development of appurtenant facilities related to the removal of coal by underground methods, oil or gas development or activities incident to the removal or development of such minerals is permitted...”* It is allowed, *“provided the location of activities and structures, permitted under this provision is consistent with the agricultural viability and the protection of soils purposes as articulated in this Agricultural Conservation Easement.”* It further states that, *“In the event that underground access to coal veins is necessary and above ground drilling for oil and gas occurs, the installation of drill, underground mining entrances, and road access shall be permitted, provided that such activities are located and carried out in a manner that protects to the greatest extent practicable prime unique, and important soils.”*

It’s easy to see where wording “to the greatest extent practicable” “agricultural viability” or the uncertainty regarding who has the final determination of what development is “necessary” beckons for differing interpretation and debate to the grandest scale; which is what occurred in 2011, when a compressor station was proposed on an eased farm where NRCS was an easement Grantee. The compressor station proposal was ultimately halted in a USDA National Appeals Division case, in part by arguing that the compressor station was a “utility” and did not fall under the “Mining and Drilling” clause.

This event, along with two other related cases, caused significant bad will and reputational damage to the Bradford County Farmland Preservation Program...even though the circumstance could only be duplicated on half its farms (only those having NRCS interest). From the perspective of this writher, it would be, for all practical purposes, the most detrimental factor toward exploring permanent buffers on farms eased through Bradford County's Farmland Preservation Program.

Following such controversy, while the addendum has been / is being worked to try and better reflect the easement expectations and conditions, no further guidelines toward gas development on FRPP eased lands have been established by NRCS; the policy remaining that proposed gas development is to be reviewed for consideration on a case-by-case basis. In other words, administrators, landowners and co-grantees might only guess to what extent riparian buffers may be protected against gas development by NRCS. While they may defend such areas against gas development, it is likely that their commitment toward permanently protected buffers would only go as far as it is encouraged and enabled within its Field Office Technical Guide, where it is only one of many management options, which can be changed at any time. That said, further exploration and direct discussion with the organization is certainly warranted in this regard.

The example above provides a couple of "lessons" when designing methods and tools to permanently protect riparian buffers: (1) from the onset, there needs to be clarity in what is or is not allowed regarding Marcellus gas development within the region (and while it is impossible to imagine all the "what if" situations, one can foresee and address many of those that are "probable"), and (2) those allowances and restrictions should be understandable to the layperson (verbally and in writing).

LEVELS OF PROTECTION

The normal presumption is that a permanent easement would not allow most, if not all surface disturbance in order to protect the conservation or other targeted value (in this case, ecological integrity of the riparian buffer). Identifying the level of public/ private commitment is essential from the onset and often not to the degree one might assume.

General animal exclusion is void within Pennsylvania's Clean Streams Law or related statutes. There are observances or determinations to include: a "danger of pollution", identification of Heavy Use Areas or Animal Concentration Areas, calculated over-balance of nutrients considering crop uptake and yield, or the observance of sediment or nutrients entering waters of the Commonwealth; all of which (as much as any within pasture or barnyard settings), can be

somewhat subjective and open to interpretation. Identifying situations and conditions that warrant the use of riparian buffers by practicality or necessity are not always cut and dry.

Some “main stream” or “traditional” conservation programs generally associated with buffer protection, don’t necessarily offer it substantively to a specific area or property, although they may be generally accepted as considerable tools toward the establishment and maintenance of riparian buffers.

Examples include the Conservation Reserve Enhancement Program or (administered by the USDA Natural Resources Conservation Service) and Pennsylvania’s Farmland Preservation Program (administered by local boards and overseen by the Bureau of Farmland Preservation).

Buffer establishment enabled via contact through Conservation Reserve Enhancement Program (CREP) can be legally terminated by the landowner at any time (corresponding to a payback of incentive funding and associated penalty to the USDA Farm Service Agency). While such payments may be borne or reimbursed by an outside development interest (such as a gas company) the results equate to an undoing of conservation effort. The term of the contract is also finite (10 or 15 years); thereafter requiring no commitment from either party.

Agriculture Conservation Easements secured through the Pennsylvania Farmland Preservation Program, while mandating the implementation of a Conservation Plan, don’t necessarily require riparian areas to be managed in a manner that ensures the highest level of conservation.

The Agricultural Conservation Easement contains not only land use allowances that introduce a high degree of variability in the way in which riparian areas are managed, but also accommodations for practices that clearly have the potential to negatively impact such areas.

Unlike easements held and enforced by private land trusts and conservancies which in some instances may be modified through negotiation, the easement clauses and format utilized by the Pennsylvania Farmland Preservation Program are static/ boiler-plate. Any modification or even re-typing is not acceptable or permitted. Therefore, permanent buffer protection, to include livestock exclusion, assured widths and specific management would have to be secured through a separate legal writ (easement or other covenant).

The protective or enforcement “teeth” within the Agricultural Conservation Easement is enabled by its mandate for the owner / operator to follow and implement a Conservation Plan. Conservation planning and implementation standards (with accompanying nutrient / manure management components) have not seemingly been well defined, written, and administered consistently over time and locale; and arguably, to some, not aligning with the “spirit” of a conservation easement. Such planning standards and norms are also subject to change, whether through administrative, policy, interpretive, or political influence.

While varying planning guidance has been provided to Program administrators over the years, having an increasing emphasis on inclusion of some standards, it is unclear whether they represent policy or a legal finding by the Bureau of Farmland Preservation with regard to the intent and mandates of Act 43.

In 2007 the RMS-level conservation plan (deemed a “comprehensive” or “higher” level plan) was dropped as the standard for the PA Farmland Preservation Program. Prior to then, the Act defined the conservation plan as: “A plan describing land management practices which, when completely implemented, will improve and maintain soil, water and related plant and animal resources of the land”. Important criteria reasonably intended by the Act, was struck from those Technical Guide Standards needing to be addressed including: fish and wildlife, domestic animals, and a number of additional considerations regarding soil, water, plants, and air. This move could be viewed as a step away from standards that would tend toward stronger promotion and emphasis toward establishing permanent riparian buffers on preserved farms. Current evaluative criteria can be found within PA Department of Agriculture’s publication, “A Guide to Farmland Preservation”, 3rd edition, Chapter 1, Section 1.6 and Exhibit 1.j-1.k. Within the current guidance, a Conservation Plan is defined:

A plan describing land management practices which, when completely implemented, will improve and maintain the soil, water and related plant and animal resources of the land. A conservation plan shall include the following:

- (i) An installation schedule.
- (ii) A maintenance program.
- (iii) A nutrient management component consisting of a statement of whether a nutrient management plan is required under the Nutrient Management Act (3 P. S. § § 1701—1718) and, if required, confirmation that a plan is in place or will be in place prior to conveyance of the agricultural conservation easement. If a nutrient management plan is not required under the Nutrient Management Act, the nutrient management component shall consist of a description of the amounts and types of nutrients generated on the farmland tract and a description of any current and planned measures or procedures for containment, use, disposal or other disposition of the nutrients described.

If any, the most promising foothold or arguments toward establishing riparian buffers and permanent protection thereof might be found in selected quality criteria of the Field Office Technical Guide, the directive that “The plan will comply with the Phosphorous Index Criteria established for the state”, and through compliance with nutrient and erosion and sedimentation laws and regulations.

Natural resource concerns which are routinely found in riparian areas and which could be tied back to the selected quality criteria of the Field Office Technical Guide include: Soil Erosion-streambank, Soil Condition–compaction (in instances of animal Heavy Use Areas), or Water Quality-excessive nutrients and organics in surface water and Excessive suspended sediment and turbidity in surface water. Field Office Technical Guide standard 590 “Nutrient Management” is not called out as a mandate for planning regarding preserved farmlands. It aligns highly with Act 38 and its rigor of representative soil analysis for all production lands, manure analysis for each animal manure group, and use of the Phosphorous Index.

It may be speculative to assume that Phosphorous Index Criteria are widely applied during preserved farm planning (as guided) since it implicates all lands having a contributing distance of 150 feet from a water body or direct conveyance thereto. And, in doing so, necessitates soil sampling of such ground (rightly to include pastures). Therein, significant weight or value is given to the presence of a 35 foot and 50 foot riparian buffer (applied to a distance of < 100 feet). Practically speaking, the lack of such a buffer can, in many situations, make it difficult to obtain a plan that allows the commonly preferred nitrogen-based management; whereby, nutrients can be applied up to the anticipated nitrogen removal rate of a given crop. The mere assurance that this principle tool is being broadly applied may serve (perhaps notably) to enhance the adoption of riparian buffers and with that, their long-term protection.

With more recent developments regarding Chapter 91 of Pennsylvania’s Clean Streams Law, every farm that handles or land applies manure or agricultural process wastewater (generated on the farm or imported), regardless of size, is required to have and implement a written Manure Management Plan at a minimum (the standard plan provided in the form of DEP’s Manure Management Plan Guidance manual).

Chapter 91 of the Clean Streams Law and its associated Manure Management Manual have, up until recently, been less than clear about the agricultural management requirements of riparian areas. The recent revision of the Manure Management Plan Guidance and manual may present newfound opportunity with its compliance emphasis.

Draft language calling for pasture manure setbacks and stocking rates was eliminated from the final draft and acceptance of PA Department of Environmental Protection’s (DEP) Manure Management Manual. Subsequent criteria include the maintenance of dense vegetation (3” height”) throughout the pasture, within the growing season while minimizing bare spots. This may likely have the following impacts on the effort to increase the establishment of buffers (including those that are permanent/ protected):

- It de-emphasizes the concern during the “non-growing” season when the potential for run-off is greatest.

- It may be interpreted to lessen the conditions that justify animal use exclusion.
- It makes compliance enforcement somewhat subjective.

Where mechanical application of manure applies, there is an initial setback of 100 feet from a stream, lake, or pond; a distance that is often not palatable to those farming productive valley-bottom ground or where farmland size is modest or “tighter” (prevalent in more southern counties and urbanizing areas). This setback can be reduced to 50 feet where a soil test is done within the past 3 years and phosphorous levels are less than 200 parts per million (closely aligning with the criteria and requirements of the Phosphorous Index). The Manual goes on to state, “The stream, lake, or pond setback can be further reduced to 35 feet where the farmer establishes or maintains a **permanent** vegetated buffer along the water body”. Here again, is a handle and potential justification for the establishment of protected riparian buffers....perhaps an “easier sell” for protecting what the farmer has already begun.

During the widespread discussions of Pennsylvania’s developing Chesapeake Bay Watershed Implementation Plan and the subsequent revision of DEP’s Manure Management Manual, there was resounding sentiment that all the legal requirements and tools to improve water quality were already available and enabled. Primary shortcomings were deemed to be rooted in education and compliance follow-through. As part of the water quality solution, the degree of riparian buffer adoption and acceptance may very well be proportionate to level of education, monitoring, and enforcement of streamside nutrient and sediment conditions; relating to Chapter 91 and 102 of Pennsylvania’s Clean Streams Law.

Not only do planning guidance, laws and regulations contain variability in the way natural resource concerns may be approached, so do the way in which participating counties approach conservation planning and Best Management Practice implementation through the Farmland Preservation Program.

It is unknown to this writer whether an assessment or study regarding the consistency of conservation planning among participating counties has ever been undertaken. Anecdotal evidence and communication between administrators suggest that there may very well be stark contrasts from one side of a county line to the other; depending on factors such as age of the easement, to whom program administration has been charged, awareness and understanding of planning methods, Board principles, political orientation, etc.

The department or location where Program administrative responsibility is housed can play a significant role in how conservation planning is viewed, approached, and enforced. While some

Programs are administered by Conservation District staff who are more inclined to understand the “ins and outs” of conservation planning, practices, and compliance, those seated in other offices (such as county planning or independently operated office) may have little familiarity with natural resource management or related Best Management Practices. Those administered outside of the District most often have to rely on the planning, expertise, and understanding of the local NRCS or District offices, or a commercial planner. While some Programs are directly involved in writing or financing plans and plan updates, others insist that the landowner / operator be responsible for their own plans. Therefore, when considering a permanent buffer protection initiative for a given locale, it is first necessary to identify where administrative and natural resource planning and implementation responsibilities lie; realizing that education, persuasion, cooperation-building may necessitate approaching and involving one person, or numerous entities.

Quality assurance for conservation planning is further complicated in the fact that a plan need not be approved by the Conservation District or NRCS office but by the Farmland Preservation Board. It has also been relayed that this plan may be written by an individual having attended Conservation Boot Camp or by the Farmland Preservation Board itself (in some circles, the latter examples perhaps having too little training or adequate understanding for the task). Without knowing the skills and abilities of the planner, it is unknown to what degree the viability and worth of permanent riparian buffers is understood, considered, explained, or promoted in planning situations throughout a given area.

Regardless of who is developing or approving the plans, some Programs approach riparian management and protection simply from a legal compliance perspective. Others may be adamant about animal exclusion and setbacks (suggesting it more as a “requirement”); perhaps knowing that legal backing may not come from case precedent nor the policy or staff of the states’ Bureau of Farmland Preservation if it were ever tested in the courtroom. For example, while there are no mandates as of yet at the state or federal level, in Bradford County, livestock have been excluded from streams and wetlands and riparian buffers established on all preserved farms for the following reasons:

- They are practical, cost-effective means to address critical resource concerns.
- Consistently in recent years, there have been a number of public and private incentives and initiatives supporting buffer establishment and associated practices.
- They meet and are supported by PA Field Office Technical Guide standards.
- They often result in positive economic, animal health, and/ or management outcomes.

In general, across the state, cooperation and coordination between Program administrators and Conservation District, NRCS, or private planners is mixed. Districts and NRCS are increasingly limited by staff, time, and other resources to maintain updated plans for preserved farms. From experience and reason, perhaps the best probability and fit for long-term riparian buffer establishment and protection is where the following conditions occur (the more, the better):

- 1) Program administrators are familiar with natural resource management and conservation planning or have a close relationship and open communication with knowledgeable conservation and nutrient management professionals.
- 2) Where a “high” level of conservation is intentionally sought and designed by Program administrators, Board, and planners.
- 3) Where the expectation of a “high” level of planning and conservation implementation (including those standards associated with riparian buffers and animal use exclusions) is provided, up-front, to prospective easement Grantors.
- 4) Where the local agencies and organizations charged with furthering natural resource stewardship, have a track record of embracing and promoting the use and benefits of riparian buffers, and
- 5) Where such efforts have, to some extent, become part of the cultural thinking and acceptance.

Identifying Acceptable Management and Monitoring Ability

For decades, land managers and stewards have grappled with seeming conflicts between land use and natural resource protection (preservation versus conservation); trying to accommodate a certain degree of impact and change while maintaining a legitimate measure of ecological integrity (our national parks being prime exhibits).

Reflected in their language and clauses, easements and protection documents have traditionally been approached from a “preservation” perspective; enabling nature to “take her course” while largely excluding human use and intervention. Conservation lends itself to “wise use” and “applications” with a “broad brush and palette”.

While eliminating the majority of uses is much simpler, warranted in certain sensitive areas, and avoiding the need to determine and interpretation “sound conservation”, it negates the exploration and utilization of potential management options and reduces the potential appeal and acceptance by some landowners.

As varied as the opinion may be regarding what outside influences might be permitted to affect a permanent riparian buffer or what tools are best suited to enable protection, so too are the potential definitions, standards, and management strategies of the buffer itself. From an ecological perspective, the forested riparian buffer may be the ideal target; however, from a

farmers' perspective (and/or that of their significant other) trees, tree tubes, wild forbs, and fences might be seen as "catch-alls", unsightly, maintenance headaches, or non-utilitarian.

Accordingly, the degree of receptivity to permanent protection buffers may be in some regard, proportionate to the degree of flexibility within the definition, design and management options thereof. For example, would the landowner have the option to: establish shrubs only, plant harvestable varieties (such as fruit and nut trees), maintain solely an herbaceous cover, mow seasonally, or flash graze? It could be argued that any one of these scenarios, held to a respective standard, might offer a level of water quality improvement notably beyond what we are seeing today in many areas.

This conservation or "working lands" approach however, calls for the Grantee to have the ability (via staff, expertise, and finances) to measure and monitor natural resource change. This isn't necessarily a given circumstance or ability within Land Trusts, Conservancies, or other public entities, who typically are the Grantees or "holders" of an easement or other covenant.

If maximum flexibility is to be enabled however, it would be appropriate to devise a "cost-benefit" matrix and/or "thresholds of acceptability" to insure standards that even when held to a minimum, would affect positive, desired, results in water quality. With flexibility also comes potential complexity when measuring and enforcing the contract or easement conditions over time. Consideration would have to be given to the Grantees ability to measure and monitor the sum of variable conditions and change. Lastly, while building in flexibility, these matrixes, thresholds, or standards should be based on sound science and research.

WHICH TYPE OF TOOL?

Only with timeliness, pre-planning and coordination, could a separate easement be best used to permanently protect riparian buffers on a farm also protected by Agricultural Conservation Easement; whereby the riparian area would have a well-defined, common boundary, identically described within each document. In this instance, efficiency may be gained regarding the survey and associated costs, where both initiatives could benefit from singular contracting, field work, and resulting description. If not chronologically in sync, or with overlapping meets and bounds, the first recorded easement may likely preempt and/or prevent a subsequent easement; creating a conflict of interests and conditions that might result in compliance/enforcement issues. There are a good number of examples within the Farmland Preservation Program where two, side-by-side easements have been enabled by differing entities on the same farm; however, the cooperation, coordination, and communication required to facilitate this may not wisely be considered a common occurrence or easy development.

Where an Agriculture Conservation Easement exists, encompassing the riparian areas, there may be less conflict establishing a “permanent” riparian area through the development and use of a long-term contract or lease agreement (traditionally 99 years in duration). Still, care would have to be taken toward crafting and adopting language that would not override the pre-established rights of the Agricultural Conservation Easement.

Besides the durational limit, a potential drawback to this approach might be the unlikelihood that this type of instrument could be used to garner a tax deduction in the form of a bargain sale or donation as would an easement. This is one aspect, particularly in the gas and oil-rich areas of Pennsylvania where conservationist might capitalize on promoting and “selling” buffer easements by noting the potential deductions which might offset taxes due from large royalty income.

This naturally leads to the need for an accurate value assessment of riparian buffer protection; not only from a tax perspective, but as an incentive option. Within the Farmland Preservation Program, easements are most often purchased at a rate equal to or less than a value generated by a certified appraiser (who accordingly charges a going service rate). Other initiatives (such as the Conservation Reserve Enhancement Program), utilize an incentive payment or going rate for implementing various practices. Finding a balance between an amount enticing to the landowner and most efficient by the organization or agency can be tricky and/or require some negotiation skill. In lieu of a formal appraisal, one might consider the past performance and success of the Chesapeake Bay Foundations Buffer Bonus Program which offers vouchers or escrow dollars toward the implementation of targeted conservation practices in exchange for the establishment of riparian buffers. Incentive amounts are adjusted according to the type of land being “taken out of production”...less for idle land than prime agricultural land. On a larger landscape scale, these might be adjusted further to consider and reflect land development values (from rural to urban).

Where piggy-backing the Agricultural Conservation Easement, a good portion of the incentive may be considered to have already been fronted the landowner(s); whereby, additional funding for riparian buffer protection would merely be “icing on the cake” or an enticement to “step their management and stewardship up a notch”. In coming to grips with an appropriate incentive rate, it may be helpful to first examine a county’s easement purchase price. Many Farmland Preservation Boards have already dealt with and determined a locally acceptable cost-per-acre when purchasing an easement. It would be logical to be below or up to that price if the riparian buffer incentive were a separate development, and a fraction offered thereof if the buffer protection was part of the prior eased lands.

CARRYING OUT THE PROTECTION

Whether it be a lease, contract, easement, or other easement, without respective authority, designation and council provided, it can’t be assumed that a local Agricultural Land Preservation Board and administrative staff could legally take on the task of administering a

separate covenant outside of that designed and enabled by Act 43, the Agriculture Security Area Law and subsequent Chapter 138e, Agriculture Conservation Easement Purchase Program. The permanent riparian protection instrument would most likely have to be held and enforced by a separate entity or outside an Agricultural Land Preservation Boards' Programmatic funding, prioritization, legal and liability structure.

Provided the protection tools and context could be found, there are practical and monetary implications to consider regarding buffer granting, documenting, and monitoring.

In a typical easement transaction, prerequisites often include: title search and commitment, survey, appraisal, legal and settlement service, and recording. These formal, incidental expenses can equate to a sizable sum which for a "sliver" of riparian buffer, may not be deemed cost-effective. Alternatives to this traditional model are being more recently and broadly explored. For example, over-the-counter Global Positioning Systems (GPS) and Geographic Information Systems (GIS) are being used to document lands and boundaries in lieu of a formal survey by a licensed professional. While this represents notable savings in one of the most costly areas of land protection, to this writers knowledge, there is limited if any legal precedence or finding regarding defensible sufficiency of this standard within the courtroom. Similar sentiment can be made toward contractual documents not formally investigated to see whether the Grantor has good title, or not officially filed in a public recording office. On the other hand, with a reduction in establishment or up-front costs, there is perhaps less obligation felt toward entering a lengthy and costly legal battle resulting from a breach of contract or easement.

Organizations such as the Pennsylvania Land Trust Association (PALTA) offer easement templates which are applicable toward riparian easement protection. Along those lines, the dynamic nature of streams and waterways perhaps begs the protection instrument to be somewhat dynamic or specific to a given situation. Contract or easement Grantees would do well to try and incorporate some practical solutions or accommodations regarding the following: Is the buffer being sought along an unstable stream, where stream and therefore buffer width may vary widely over time? What occurs if the stream or storm event creates a new channel outside of the protected area? What maintenance options or obligations does a landowner have toward the stream or surrounding vegetation and what are likely associated costs? These questions in particular add notable complexity and call for added creativity when considering riparian area protection.

A Potential Funding Avenue

Nutrient trading or nutrient credits have been touted as an incentive and tool for riparian buffer protection. At this writing, the market demand and going rate for credits is not terribly high and the administrative requirements and expenditures (including time, labor, transportation, etc.) for documentation/ calculation, submission/ certification and routine verification (while less than for annual practices) are worth weighing.

CONCLUSION

Through experience, measured research and inquiry, and interviews with Farmland Preservation Program Administrators, there does seem to be permanent riparian buffer protection potential on farms eased (or to be eased) through Pennsylvania's Farmland Preservation Program. This may be best enabled with less potential conflict in the form of a long-term contract. Notable questions remain regarding whom and with what means and authority the permanent protected buffers would be facilitated and enforced.

There is higher likelihood of adoption and success where there is a predominance of favorable factors and conditions (previously noted, starting with broad local support and knowledge regarding buffers). Interest might further be garnered by offering an incentive either as a direct payment or as a voucher toward related conservation practices.

Buy-in may be gained throughout the state but would likely need to be moderated within Marcellus region through the accommodation and clarification of agreement conditions pertaining to gas development.

REFERENCES:

Pennsylvania Bureau of Farmland Preservation

A Guide to Farmland Preservation, 3rd Edition, PA Department of Agriculture

Act 43, Agriculture Security Area Law and subsequent Chapter 138e, Agriculture Conservation Easement Purchase Program

County Farmland Preservation Program and guidelines

USDA, Natural Resources Conservation Service: Farm and Ranch Lands Protection Program, Conservation Reserve Enhancement Program, Environmental Quality Incentive Program

Chesapeake Bay Foundation; "buffer bonus" / "BMP voucher" initiatives

Pennsylvania Land Trust Association

Chesapeake Bay Foundation's Innovative Barnyard Installation Report

Tim and Pat Lamb Dairy Farm

Tim and Pat Lamb operate their family's dairy farm located near Ulster, Bradford County. Their farm consists of 65 acres of cropland, as well as 43 acres of pasture. The Lambs' dairy herd typically consists of 90 dairy cows and 60 heifers and calves.

Prior to the implementation of this project, the cows had unrestricted access to a large wetland pasture and stream corridor that created a serious water quality concern. In addition, animals pastured above Ulster Road, which runs through the farmstead, were fed and allowed to congregate just above the road ditch. This ditch leads directly to the stream.

Fortunately, when the Natural Resources Conservation Service, Bradford County conservation District and Chesapeake Bay Foundation staff first visited with Tim and Pat, they were agreeable to making simple changes to their farm management that proved to be very beneficial to them, to their animals, and to the entire Sugar Creek watershed.

And so a public/private partnership was born. This partnership included the USDA's Farm Service Agency and NRCS, PA Dept. of Environmental Protection, Bradford County Conservation District, Chesapeake Bay Foundation, Chesapeake Energy, and, of course, the Lamb family.

The first innovative plan that was formulated sought to achieve the greatest amount of water quality improvement with the least possible cost. With funding through the USDA's Conservation Reserve Enhancement Program (CREP), a 13.7 acre riparian buffer was established in the nearby wetland pasture, which was severely degraded due to continuous access by the animals. With the cows fenced out of the stream, an alternative water source was needed. A spring located near a hilltop above the barn was developed to provide clean drinking water for the animals far away from any surface water. A laneway and stream crossing were then constructed to provide a stable travel corridor from the barn to the pasture. This simple and cost effective management change proved to be a significant benefit to water quality, without negatively impacting Tim and Pat's operation. Tim readily admits "our cows are a lot cleaner now".

Another water quality issue came from the large volume of rain water that fell from the barn roof onto the area where the cows exited the barn. Roof gutters were installed and connected to underground outlets that carried the stormwater to the newly-created riparian buffer. Another simple but effective solution to "keep clean water clean".



Lamb Barnyard – Before



Lamb Barnyard – After



Cattle Walkway to Water Trough



Water Trough on Stable Pad

A second area where innovative thinking was used to solve a water quality concern was the pasture area across Ulster Road. Round bales were fed just above the road where the runoff from the highly impacted area was entering the road ditch from where it could directly enter the stream. A stabilized feeding area and access road were installed further up the hill in the pasture to allow the runoff to be filtered through a grassy area.



Pasture above Road – Before



Pasture above Road - After

Improper disposal of milkhouse wastewater was also a water quality concern. This problem was resolved simply by redirecting the wastewater into the existing manure storage where it is blended with the manure prior to field application.

An additional stream buffer was installed across the township road along the Sugar Creek. A reinforced gravel access road was installed along with a stream crossing so that when the pasture on the far side of the stream is accessible the animals are fed away from the stream to keep them from congregating in a small area adjacent to the buffer.

The last major water quality issue involved an eroding streambank, which was exacerbated by recent flood events. Here DEP's Growing Greener program funding was paired with a grant from Chesapeake Energy to stabilize 500 feet of stream corridor utilizing strategically placed large boulders. Technical assistance for this work was provided by the Bradford Conservation District.

Thanks to willing landowners, a broad conservation partnership, and some old-fashioned ingenuity, the Sugar Creek watershed will be a lot healthier from this day forward.

Knecht-Knoll Dairy Farm

Knecht-Knoll farm is operated by Bill and Stacy Houseknecht and their family. Their 312 acre dairy farm is located in Springfield Township, Bradford County. Their property drains into Mill Creek and west branch of the Tomjack creek watersheds, which are tributaries to Sugar Creek. The dairy herd typically consists of 120 milk cows, 20 dry cows, 30 heifers, and 10 calves.

The original dairy barn was located directly above a drainageway that outlets into Mill Creek. This management issue created a number of water quality concerns due to the heavy cattle use this area received on a daily basis.

After consulting with NRCS and Conservation District staff, Bill decided the most viable alternative was to construct a new facility across the road in a location that would be away from any major drainageways. Conservation Initiative Grant funding was utilized to provide the operator an updated Comprehensive Nutrient Management Plan. With funding from the USDA's Environmental Quality Incentives Program, as well as credits from CBF's buffer bonus program, a waste storage and access road was constructed below the new barn. This gave the Houseknechts the ability to store manure during the winter months and better utilize the manure nutrients immediately prior to spring planting.

Having the dairy cows relocated to the new barn gave the Houseknechts the option to move their heifers during the winter months from the unstable animal concentration area in the pasture to confinement in the old barns. This management change had a dual benefit of better herd health and improved water quality.

Before the days of electricity, most barns were located near a reliable natural water source. With the advent of electricity, herd sizes grew, as did their impact to the waterways just outside the barn door. The innovative lesson learned with this project is that sometimes it just makes the most sense to move the major components of a farm operation away from the stream corridor and onto higher ground.



Barnyard at the Old Barn



Total Confinement at the New Facilities



Manure Storage and Access Road



Riparian Buffer below the old Facility

Guy Harnish Beef and Replacement Heifer Farm

Guy Harnish operates a beef and heifer replacement farm located in Canton Township, Bradford County. His 355 acre farm drains into unnamed tributaries of the North Branch of Towanda creek and Alba creek. The herd typically consists of 55 cow/calf pairs, 30 steers, 2 bulls, 10 beef heifers, and 45 dairy heifers.

Mr. Harnish has three different areas where the animals are kept. The first is a Virginia style heifer barn for the heifers where the animals are confined. Approximately 30 cows are kept in a pasture across the road from the barn, which is degraded due to heavy animal use and poor surface water drainage. A roofed heavy use area protection and stacking area is planned to address these water quality concerns.

The third area is used by freshening cows at the old dairy barn and pasture above the barn. The barnyard area needed stabilization, but Mr. Harnish didn't want the animals confined to concrete all the time. The high cost of constructing such a facility was also a concern.

An innovative alternative to an expensive concrete barnyard was a change in animal management so that most of the year they were confined to a high, somewhat rocky hilltop above

the barn, with plenty of grass below this area that acts as a natural filter area. The cows normally rest on the south-facing ledge that is out of the wind. A reinforced gravel animal walkway was constructed between the barn and the fenced hilltop to minimize cattle impact to wet drainage courses.

A Comprehensive Nutrient Management Plan was developed outlining these concerns. USDA Environmental Quality Incentives Program funding and CBF Buffer Bonus funds were utilized to install the heavy use area protection, manure stacking area, animal walkways and fencing.



Stabilized Cattle Walkway from Barn



Stabilized Cattle Walkway to Stable Hillside

Steve Saxton Heifer Replacement Farm

Steve Saxton operates a heifer replacement farm located in Columbia Crossroads, Bradford County. This 144 acre farm is located in the Sugar-Towanda creek watershed. Steve's herd typically consists of 30 bred heifers, 30 heifers, and 20 calves, which utilize a rotational grazing system from spring through fall.

There are several water quality concerns related to this operation. An unstable heavy use area is located along the road and stream north of the main barn. The cattle have access to the stream and a large area is denuded of all vegetation. Roof runoff from the adjacent barns flushes through this area and directly into the creek. To remedy this situation, the stream will be fenced out and a heavy use area protection will be installed. Runoff from the HUAP will be directed to an existing earthen manure storage.

There is also another unstable feed area along the stream just south of the barn. Once again, with some innovative planning, Mr. Saxton agreed to construct a remote barnyard away from the stream in an area that will give the cattle some protection from the wind. A combination concrete and reinforced gravel pad with a slotted curb connected to a vegetated treatment area is planned. Stabilized cattle laneways and crossings are an important component of the remote barnyard and were constructed using CBF Buffer Bonus funds. Construction will begin soon on the actual barnyard.

Conservation Innovative Grant funding was utilized to formulate a Comprehensive Nutrient Management Plan so that the operator is eligible for USDA Environmental Quality Incentive Program funding.



Cattle Walkway Area – Before



Cattle Walkway - After



Future site of Remote Barnyard



CREP area to be fenced and planted Spring 2014

Ron and Missy Forbes Dairy Farm

Ron and Missy Forbes operate a dairy farm in Wysox Township, Bradford County. Their 173 acre farm is located in the Hollow Run and Wysox creek watershed. Typical animal numbers include 70 milk cows, 21 heifers, 2 bulls, and 30 calves.

The Forbes had daily hauled slurry manure. Fields receiving manure are accessible most times of the year, but some are in the flood plain of Wysox creek, which has seen frequent flooding in recent years.

Ron has considered installing a liquid manure storage system to handle manure more efficiently. However, the expense involved in this option makes it cost prohibitive.

Additional manure management problems exist in the unstable barnyard behind the barn. Roof water is not controlled and flushes through the barnyard. Runoff from the steep hillside behind the barn also flows through the barnyard.

With the manure management concerns around the farmstead combined with the desire to eliminate daily hauling of manure during the winter months, a unique approach to solving these challenges was identified by the Forbes, NRCS, and the Bradford Conservation District. As they say, where there is a will, there is a way.

Since a stabilized barnyard was a high priority, it was decided to install a concrete barnyard and a manure stacking area. This gives Mr. Forbes the option to use a dry manure stacking system instead of a liquid manure system. The manure in the barn is directed to a pit where it is then transported to the barnyard by use of an auger. This will allow Ron to scrape manure in the barnyard to the stacking area where it will be stored throughout the winter months. This solution solves both the problem of an unstable barnyard and the need to eliminate daily hauling manure when the weather is not conducive.

The USDA Environmental Quality Incentives Program provided funding for the concrete barnyard and related BMPs. CBF's buffer bonus grant program provided funding for the auger to transport the manure from the barn to the barnyard.



Forbes Barnyard – Before



Forbes Barnyard - After

As part of the Chesapeake Bay Foundation's Buffer Bonus Program with funding from Growing Greener and/or Conservation Innovation Grant, Cooperators are required to certify that they meet Environmental Quality Incentive Program (EQIP) requirements.

EQIP ELIGIBILITY REQUIREMENTS

Please initial that you meet each of these requirements

| | Initial |
|---|---------|
| I am an agricultural producer that is engaged in livestock or agricultural production as defined by EQIP. The annual value of produce exceeds \$1,000 of agricultural products produced and/or sold from the operation. | MEH |
| I have an interest in the farming operation or the nonindustrial private forest land, or land capable of growing trees, associated with the land being offered. | MEH |
| I have control of the land enrolled in this project for the term of the project. Supply a written concurrence of the landowner at the time of the application if the land is rented (ask extension agent for form). | MEH |
| I am in compliance with the highly erodible land and wetland conservation compliance provisions (ask extension agent how to determine). | MEH |
| I am within appropriate payment limitation requirements. I don't receive, directly or indirectly, cost-share or incentive payments that in aggregate exceed \$300,000 during the period of fiscal years 2008 through 2012. | MEH |
| I am in compliance with Adjusted Gross Income (AGI) requirements, which states that a person or legal entity shall not be eligible to receive any benefit during a crop, fiscal, or program year, as appropriate, if the average adjusted gross non-farm income of the person or legal entity exceeds \$1,000,000, unless not less than 66.66 percent of the average adjusted gross income of the person or legal entity is average adjusted gross farm income. | MEH |

If needed, please visit your local USDA Service Center and request additional information with FSA. You don't have to have an EQIP contract to participate in this project, but if you do, that contract would also require this certification. CBF is required to provide this form for their work regardless of whether it may have already been completed as part of EQIP. Persons not meeting the above requirements are not eligible for funds from CBF under this agreement.

Brian E. Harris
Cooperator Signature

4-24-12
Date

Brian E. Harris
Cooperator Name (printed)

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Clark Thomas Dayton
Cooperator Signature

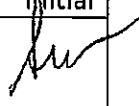
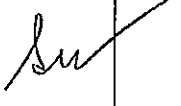


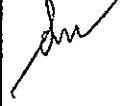
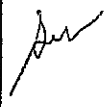
4/10/13
Date

CLARK THOMAS DAYTON
Cooperator Name (printed)

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Cooperator Signature

10-23-12
Date

Cooperator Name (printed)

As part of the Chesapeake Bay Foundation's Buffer Bonus Program with funding from Growing Greener and/or Conservation Innovation Grant, Cooperators are required to certify that they meet Environmental Quality Incentive Program (EQIP) requirements.

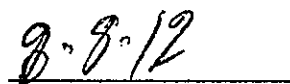
EQIP ELIGIBILITY REQUIREMENTS

Please initial that you meet each of these requirements

| | Initial |
|---|---------|
| I am an agricultural producer that is engaged in livestock or agricultural production as defined by EQIP. The annual value of produce exceeds \$1,000 of agricultural products produced and/or sold from the operation. | RBC |
| I have an interest in the farming operation or the nonindustrial private forest land, or land capable of growing trees, associated with the land being offered. | RBC |
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| I am in compliance with the highly erodible land and wetland conservation compliance provisions (ask extension agent how to determine). | RBC |
| I am within appropriate payment limitation requirements. I don't receive, directly or indirectly, cost-share or incentive payments that in aggregate exceed \$300,000 during the period of fiscal years 2008 through 2012. | RBC |
| I am in compliance with Adjusted Gross Income (AGI) requirements, which states that a person or legal entity shall not be eligible to receive any benefit during a crop, fiscal, or program year, as appropriate, if the average adjusted gross non-farm income of the person or legal entity exceeds \$1,000,000, unless not less than 66.66 percent of the average adjusted gross income of the person or legal entity is average adjusted gross farm income. | RBC |

If needed, please visit your local USDA Service Center and request additional information with FSA. You don't have to have an EQIP contract to participate in this project, but if you do, that contract would also require this certification. CBF is required to provide this form for their work regardless of whether it may have already been completed as part of EQIP. Persons not meeting the above requirements are not eligible for funds from CBF under this agreement.


Cooperator Signature


Date

Cooperator Name (printed)



As part of the Chesapeake Bay Foundation's Buffer Bonus Program with funding from Growing Greener and/or Conservation Innovation Grant, Cooperators are required to certify that they meet Environmental Quality Incentive Program (EQIP) requirements.

EQIP ELIGIBILITY REQUIREMENTS

Please initial that you meet each of these requirements

| | Initial |
|---|---------|
| I am an agricultural producer that is engaged in livestock or agricultural production as defined by EQIP. The annual value of produce exceeds \$1,000 of agricultural products produced and/or sold from the operation. | P.K.R. |
| I have an interest in the farming operation or the nonindustrial private forest land, or land capable of growing trees, associated with the land being offered. | P.K.R. |
| I have control of the land enrolled in this project for the term of the project. Supply a written concurrence of the landowner at the time of the application if the land is rented (ask extension agent for form). | P.K.R. |
| I am in compliance with the highly erodible land and wetland conservation compliance provisions (ask extension agent how to determine). | P.K.R. |
| I am within appropriate payment limitation requirements. I don't receive, directly or indirectly, cost-share or incentive payments that in aggregate exceed \$300,000 during the period of fiscal years 2008 through 2012. | P.K.R. |
| I am in compliance with Adjusted Gross Income (AGI) requirements, which states that a person or legal entity shall not be eligible to receive any benefit during a crop, fiscal, or program year, as appropriate, if the average adjusted gross non-farm income of the person or legal entity exceeds \$1,000,000, unless not less than 66.66 percent of the average adjusted gross income of the person or legal entity is average adjusted gross farm income. | P.K.R. |

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Paul K. Robbins
Cooperator Signature

4-8-2013
Date

Paul K. Robbins
Cooperator Name (printed)

As part of the Chesapeake Bay Foundation's Buffer Bonus Program with funding from Growing Greener and/or Conservation Innovation Grant, Cooperators are required to certify that they meet Environmental Quality Incentive Program (EQIP) requirements.

EQIP ELIGIBILITY REQUIREMENTS

Please initial that you meet each of these requirements

| | Initial |
|--|---------|
| I am an agricultural producer that is engaged in livestock or agricultural production as defined by EQIP. The annual value of produce exceeds \$1,000 of agricultural products produced and/or sold from the operation. | PJH |
| I have an interest in the farming operation or the nonindustrial private forest land, or land capable of growing trees, associated with the land being offered. | PJH |
| I have control of the land enrolled in this project for the term of the project. Supply a written concurrence of the landowner at the time of the application if the land is rented (ask extension agent for form). | PJH |
| I am in compliance with the highly erodible land and wetland conservation compliance provisions (ask extension agent how to determine). | PJH |
| I am within appropriate payment limitation requirements. I don't receive, directly or indirectly, cost-share or incentive payments that in aggregate exceed \$300,000 during the period of fiscal years 2008 through 2012. | PJH |
| I am in compliance with Adjusted Gross Income (AGI) requirements, which states that a person or legal entity shall not be eligible to receive any benefit during a crop, fiscal, or program year, as appropriate, if the average adjusted gross non-farm income of the person or legal entity exceeds \$1,000,000, unless not less than 66.66 percent of the average adjusted gross income of the person or legal entity is average adjusted gross farm income. | PJH |

If needed, please visit your local USDA Service Center and request additional information with FSA. You don't have to have an EQIP contract to participate in this project, but if you do, that contract would also require this certification. CBF is required to provide this form for their work regardless of whether it may have already been completed as part of EQIP. Persons not meeting the above requirements are not eligible for funds from CBF under this agreement.

Paul Hayduk

Cooperator Signature

2-6-13

Date

Paul Hayduk

Cooperator Name (printed)

As part of the Chesapeake Bay Foundation's Buffer Bonus Program with funding from Growing Greener and/or Conservation Innovation Grant, Cooperators are required to certify that they meet Environmental Quality Incentive Program (EQIP) requirements.

EQIP ELIGIBILITY REQUIREMENTS

Please initial that you meet each of these requirements

| | Initial |
|---|---------|
| I am an agricultural producer that is engaged in livestock or agricultural production as defined by EQIP. The annual value of produce exceeds \$1,000 of agricultural products produced and/or sold from the operation. | LR |
| I have an interest in the farming operation or the nonindustrial private forest land, or land capable of growing trees, associated with the land being offered. | LR |
| I have control of the land enrolled in this project for the term of the project. Supply a written concurrence of the landowner at the time of the application if the land is rented (ask extension agent for form). | LR |
| I am in compliance with the highly erodible land and wetland conservation compliance provisions (ask extension agent how to determine). | LR |
| I am within appropriate payment limitation requirements. I don't receive, directly or indirectly, cost-share or incentive payments that in aggregate exceed \$300,000 during the period of fiscal years 2008 through 2012. | LR |
| I am in compliance with Adjusted Gross Income (AGI) requirements, which states that a person or legal entity shall not be eligible to receive any benefit during a crop, fiscal, or program year, as appropriate, if the average adjusted gross non-farm income of the person or legal entity exceeds \$1,000,000, unless not less than 66.66 percent of the average adjusted gross income of the person or legal entity is average adjusted gross farm income. | LR |

If needed, please visit your local USDA Service Center and request additional information with FSA. You don't have to have an EQIP contract to participate in this project, but if you do, that contract would also require this certification. CBF is required to provide this form for their work regardless of whether it may have already been completed as part of EQIP. Persons not meeting the above requirements are not eligible for funds from CBF under this agreement.

Steven H. Roy
Cooperator Signature

4-26-13
Date

Cooperator Name (printed)

EQIP ELIGIBILITY REQUIREMENTS

Please initial that you meet each of these requirements

| | Initial |
|--|---------|
| I am an agricultural producer that is engaged in livestock or agricultural production as defined by EQIP. The annual value of produce exceeds \$1,000 of agricultural products produced and/or sold from the operation. | RL |
| I have an interest in the farming operation or the nonindustrial private forest land, or land capable of growing trees, associated with the land being offered. | RL |
| I have control of the land enrolled in this project for the term of the project. Supply a written concurrence of the landowner at the time of the application if the land is rented (ask extension agent for form). | RL |
| I am in compliance with the highly erodible land and wetland conservation compliance provisions (ask extension agent how to determine). | RL |
| I am within appropriate payment limitation requirements. I don't receive, directly or indirectly, cost-share or incentive payments that in aggregate exceed \$300,000 during the period of fiscal years 2008 through 2012. | RL |
| I am in compliance with Adjusted Gross Income (AGI) requirements, which states that a person or legal entity shall not be eligible to receive any benefit during a crop, fiscal, or program year, as appropriate, if the average adjusted gross non-farm income of the person or legal entity exceeds \$1,000,000, unless not less than 66.66 percent of the average adjusted gross income of the person or legal entity is average adjusted gross farm income. | RL |

If needed, please visit your local USDA Service Center and request additional information with FSA. You don't have to have an EQIP contract to participate in this project, but if you do, you already passed all these requirements.

As part of the Chesapeake Bay Foundation's Buffer Bonus Program with funding from Growing Greener and/or Conservation Innovation Grant, Cooperators are required to certify that they meet Environmental Quality Incentive Program (EQIP) requirements.

EQIP ELIGIBILITY REQUIREMENTS

Please initial that you meet each of these requirements

| | Initial |
|---|---------|
| I am an agricultural producer that is engaged in livestock or agricultural production as defined by EQIP. The annual value of produce exceeds \$1,000 of agricultural products produced and/or sold from the operation. | L.P.S. |
| I have an interest in the farming operation or the nonindustrial private forest land, or land capable of growing trees, associated with the land being offered. | L.P.S. |
| I have control of the land enrolled in this project for the term of the project. Supply a written concurrence of the landowner at the time of the application if the land is rented (ask extension agent for form). | L.P.S. |
| I am in compliance with the highly erodible land and wetland conservation compliance provisions (ask extension agent how to determine). | L.P.S. |
| I am within appropriate payment limitation requirements. I don't receive, directly or indirectly, cost-share or incentive payments that in aggregate exceed \$300,000 during the period of fiscal years 2008 through 2012. | L.P.S. |
| I am in compliance with Adjusted Gross Income (AGI) requirements, which states that a person or legal entity shall not be eligible to receive any benefit during a crop, fiscal, or program year, as appropriate, if the average adjusted gross non-farm income of the person or legal entity exceeds \$1,000,000, unless not less than 66.66 percent of the average adjusted gross income of the person or legal entity is average adjusted gross farm income. | L.P.S. |

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Leon P Stoltz
Cooperator Signature

4-1-2013
Date

Leon P Stoltz F45
Cooperator Name (printed)

As part of the Chesapeake Bay Foundation's Buffer Bonus Program with funding from Growing Greener and/or Conservation Innovation Grant, Cooperators are required to certify that they meet Environmental Quality Incentive Program (EQIP) requirements.

EQIP ELIGIBILITY REQUIREMENTS

Please initial that you meet each of these requirements

| | Initial |
|---|---------|
| I am an agricultural producer that is engaged in livestock or agricultural production as defined by EQIP. The annual value of produce exceeds \$1,000 of agricultural products produced and/or sold from the operation. | K.L.W. |
| I have an interest in the farming operation or the nonindustrial private forest land, or land capable of growing trees, associated with the land being offered. | K.L.W. |
| I have control of the land enrolled in this project for the term of the project. Supply a written concurrence of the landowner at the time of the application if the land is rented (ask extension agent for form). | K.L.W. |
| I am in compliance with the highly erodible land and wetland conservation compliance provisions (ask extension agent how to determine). | K.L.W. |
| I am within appropriate payment limitation requirements. I don't receive, directly or indirectly, cost-share or incentive payments that in aggregate exceed \$300,000 during the period of fiscal years 2008 through 2012. | K.L.W. |
| I am in compliance with Adjusted Gross Income (AGI) requirements, which states that a person or legal entity shall not be eligible to receive any benefit during a crop, fiscal, or program year, as appropriate, if the average adjusted gross non-farm income of the person or legal entity exceeds \$1,000,000, unless not less than 66.66 percent of the average adjusted gross income of the person or legal entity is average adjusted gross farm income. | K.L.W. |

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Kevin S. Williams
Cooperator Signature

Kevin S. Williams
Cooperator Name (printed)

4-2-12
Date



As part of the Chesapeake Bay Foundation's Buffer Bonus Program with funding from Growing Greener and/or Conservation Innovation Grant, Cooperators are required to certify that they meet Environmental Quality Incentive Program (EQIP) requirements.

EQIP ELIGIBILITY REQUIREMENTS

Please initial that you meet each of these requirements

| | Initial |
|---|---------|
| I am an agricultural producer that is engaged in livestock or agricultural production as defined by EQIP. The annual value of produce exceeds \$1,000 of agricultural products produced and/or sold from the operation. | JMS |
| I have an interest in the farming operation or the nonindustrial private forest land, or land capable of growing trees, associated with the land being offered. | JMS |
| I have control of the land enrolled in this project for the term of the project. Supply a written concurrence of the landowner at the time of the application if the land is rented (ask extension agent for form). | JMS |
| I am in compliance with the highly erodible land and wetland conservation compliance provisions (ask extension agent how to determine). | JMS |
| I am within appropriate payment limitation requirements. I don't receive, directly or indirectly, cost-share or incentive payments that in aggregate exceed \$300,000 during the period of fiscal years 2008 through 2012. | JMS |
| I am in compliance with Adjusted Gross Income (AGI) requirements, which states that a person or legal entity shall not be eligible to receive any benefit during a crop, fiscal, or program year, as appropriate, if the average adjusted gross non-farm income of the person or legal entity exceeds \$1,000,000, unless not less than 66.66 percent of the average adjusted gross income of the person or legal entity is average adjusted gross farm income. | JMS |

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 Cooperator Signature

5/13/13

 Date

 Cooperator Name (printed)



As part of the Chesapeake Bay Foundation's Buffer Bonus Program with funding from Growing Greener and/or Conservation Innovation Grant, Cooperators are required to certify that they meet Environmental Quality Incentive Program (EQIP) requirements.

EQIP ELIGIBILITY REQUIREMENTS

Please initial that you meet each of these requirements

| | Initial |
|---|---------|
| I am an agricultural producer that is engaged in livestock or agricultural production as defined by EQIP. The annual value of produce exceeds \$1,000 of agricultural products produced and/or sold from the operation. | RS |
| I have an interest in the farming operation or the nonindustrial private forest land, or land capable of growing trees, associated with the land being offered. | RS |
| I have control of the land enrolled in this project for the term of the project. Supply a written concurrence of the landowner at the time of the application if the land is rented (ask extension agent for form). | RS |
| I am in compliance with the highly erodible land and wetland conservation compliance provisions (ask extension agent how to determine). | RS |
| I am within appropriate payment limitation requirements. I don't receive, directly or indirectly, cost-share or incentive payments that in aggregate exceed \$300,000 during the period of fiscal years 2008 through 2012. | RS |
| I am in compliance with Adjusted Gross Income (AGI) requirements, which states that a person or legal entity shall not be eligible to receive any benefit during a crop, fiscal, or program year, as appropriate, if the average adjusted gross non-farm income of the person or legal entity exceeds \$1,000,000, unless not less than 66.66 percent of the average adjusted gross income of the person or legal entity is average adjusted gross farm income. | RS |

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Cooperator Signature

4-25-13
Date

Cooperator Name (printed)

As part of the Chesapeake Bay Foundation's Buffer Bonus Program with funding from Growing Greener and/or Conservation Innovation Grant, Cooperators are required to certify that they meet Environmental Quality Incentive Program (EQIP) requirements.

EQIP ELIGIBILITY REQUIREMENTS

Please initial that you meet each of these requirements

| | Initial |
|--|---------|
| I am an agricultural producer that is engaged in livestock or agricultural production as defined by EQIP. The annual value of produce exceeds \$1,000 of agricultural products produced and/or sold from the operation. | BRD |
| I have an interest in the farming operation or the nonindustrial private forest land, or land capable of growing trees, associated with the land being offered. | BRD |
| I have control of the land enrolled in this project for the term of the project. Supply a written concurrence of the landowner at the time of the application if the land is rented (ask extension agent for form). | BRD |
| I am in compliance with the highly erodible land and wetland conservation compliance provisions (ask extension agent how to determine). | BRD |
| I am within appropriate payment limitation requirements. I don't receive, directly or indirectly, cost-share or incentive payments that in aggregate exceed \$300,000 during the period of fiscal years 2008 through 2012. | BRD |
| I am in compliance with Adjusted Gross Income (AGI) requirements, which states that a person or legal entity shall not be eligible to receive any benefit during a crop, fiscal, or program year, as appropriate, if the average adjusted gross non-farm income of the person or legal entity exceeds \$1,000,000, unless not less than 66.66 percent of the average adjusted gross income of the person or legal entity is average adjusted gross farm income. | BRD |

If needed, please visit your local USDA Service Center and request additional information with FSA. You don't have to have an EQIP contract to participate in this project, but if you do, that contract would also require this certification. CBF is required to provide this form for their work regardless of whether it may have already been completed as part of EQIP. Persons not meeting the above requirements are not eligible for funds from CBF under this agreement.

Brian R Driscoll

Cooperator Signature

11/29/11

Date

Brian Driscoll

Cooperator Name (printed)