Bucks County Conservation District

2019 Annual Report

Table of Contents

Front Cover:

After being collected with a net in the stream, macroinvertebrate samples are filtered through a sample splitter before being preserved in a jar for identification in a lab.

Board of Directors

Jeffrey Garton, Chairman

David Wolfinger, Vice Chairman

John Frederick, Secretary

Jeffrey A. Vey , Treasurer

Robert G. Loughery, Commissioner Director

Thomas Trycieki, Farmer Director

Dwight L. Ely, Farmer Director

James Hallowell, Associate Director

Broc Sandelin, Associate Director

Peter Stampfl, Associate Director

Catherine T. Skwara, Associate Director

Scott Smith, Associate Director

Evan Stone, Associate Director

The BCCD is a legal subdivision of state government and is administered by a Board of Directors composed of four farmer members, two public members, and one county commissioner member, all of whom serve without pay. The Directors work with all individuals, organizations, and agencies interested in soil and water conservation, land use planning, watershed protection, and flood prevention in the broadest sense to secure their assistance and support in planning and carrying out District programs.

2019 Annual Report – Manager Message

Reflecting on 2019 seems like a pleasant distraction from our daily struggles during week two of the March 2020 quarantine due to the Corona virus outbreak. Finding the ability to focus on this type of task and flex creative muscles when it feels like responsible people must spend every moment laser focused on consuming news reports and providing for the safety of our staff and the public makes things a little more challenging.

2019 was a pretty typical year for the BCCD. And by typical I do not mean unimpressive. The BCCD received and reviewed approximately 1,132 plans in 2019 alone. A brief review of the last few years showed that on average the BCCD reviewed about 944 small plans (earth disturbance under 1 acre) and issued 105 NPDES permits annually. Keep in mind that each of these plan reviews and permits also represents a significant level of field work for the life of the project. With only six staff members dedicated to the 102 program, and only four of those completing field inspections, this represents an incredibly impressive level of productivity.

And finally, reporting on 2019 would not be complete without mentioning the PA DEP's revision of the NPDES permitting program. This change was rapidly implemented on December 7, 2019 with virtually no training provided to either Conservation Districts or the regulated community.

I look forward to reporting on the BCCD's success with these significant programmatic changes and unprecedented world events in our next annual report. Until then, I wish you all good health and happiness.

Sincerely,

Gretchen Schatschneider

BCCD District Manager

Presentation of the Fred Groshens Conservation Farmer of the Year Award to the Bolton's Turkey Farm family at the 2019 Bucks County Grange Fair County Commissioner's Meeting.

Photo Credit: Juliet Kelchner, Bucks County Website Operations Manager

2019 Financial Statement

Revenue:	
Fees for services	$ 757,886
Grant Income	657,140
Interest	6,290
Miscellaneous	6,950
Total Revenue	$ 1,428,266
Expenses:	
Building Maintenance	$ 14,622
Capital Purchases	64,282
Computer Services	18,972
Dues and Subscriptions	903
Education Programs	3,322
Grants and Programs	559,040
Insurance	23,502
Meetings and Seminars	4,807
Miscellaneous	1,761
Office Supplies	8,277
Payroll and Benefits	505,784
Payroll Taxes	40,349
Postage	7,696
Professional Fees	18,682
Publicity and Promotion	474
Travel	1,304
Utilities	16,403
Vehicles	12,352
Total Expenses	$ 1,302,531
Excess of Revenues over Expenses:	$ 125,736

BCCD Staff

Gretchen Schatschneider, District Manager

Richard Krasselt, Environmental Protection Specialist

Kelly Steelman, Erosion Control Technician and Asst. DGLVR Administrator

Morgan Schuster, Erosion Control Technician and Lead DGLVR Administrator

René Moyer, Chapter 102/NPDES Administrator

Marilyn Laurelli, Receptionist

Meghan Rogalus, Watershed Specialist

Rachel Onuska, Agricultural Conservation Technician

Jason Maurer, Erosion Control Technician and Education Specialist

Sue Seykot, Asst. Chapter 102/NPDES Administrator

At left, Meghan Rogalus, BCCD Watershed Specialist, shows volunteers at Lake Towhee some characteristic features to look for to identify water chestnut (Trapa natans). Photo credit: Ashlin Brooks

At right, Gretchen Schatschneider, BCCD District Manager, directs volunteers on where to start pulling chestnut. Photo credit: Ashlin Brooks.

Erosion and Sediment Control

Bucks County Conservation District technicians enforce PA Code Title 25, Chapter 102 regulations relating to erosion and sediment pollution control and administer Pennsylvania Department of Environmental Protection programs in that field. Our team of technicians reviews land development plans to make sure they meet the requirements of Chapter 102 and conduct field inspections to ensure compliance with state and federal regulations. Our work helps protect local waterways for the benefit of us all!

The photo at left shows a sediment control basin. The plywood structure is called a baffle and is intended to increase the amount of time water travels through the basin so that more sediment settles out before discharging. However, when you can see daylight underneath, it's not working as intended. BCCD's inspections helped get this corrected.

Illustrating the power of water and the importance of routine site inspections—the compost sock sediment control that was initially installed got blown out by heavy rain. The next best upgrade? The clean stone rock filter that was installed and is shown at right.

Chapter 102/NPDES Program

Below is a summary table of BCCD's activities administering the Chapter 102/NPDES Program. As Gretchen noted in the Manager's Message in previous pages, a typical year for BCCD is a busy year in terms of permits reviewed and site inspections conducted.

Also included below are Meghan's watershed specialist programs and additional District outreach activities, which included almost 1,500 participants. Thanks to those community members who participated in our efforts in 2019!

Program activity	Activity tallies
Outreach events	21
Event participants	1,456
Technical assistance contacts	4,754
News releases	0
Technical plan reviews	825
Total project acres submitted	7,638
Total disturbed acres submitted	2,845
General NPDES permits issued	76
Individual NPDES permits issued	0
Notices of Termination acknowledged	51
Complaints received and inspected	61
New project sites inspected	128
Total inspections conducted	1,173
Total program costs	$255,850

Dirt & Gravel/Low Volume Roads (DGLVR) Program 2019

2019 was a year of wrapping up old projects and starting a couple new ones for Bucks County's DGLVR program. $89,619.47 was contracted for Dirt & Gravel Roads. No new money was spent on Low Volume Road projects. These projects spanned across 2 municipalities including Haycock Township & Tinicum Township. The Center for Dirt & Gravel/Low Volume Roads and the State Conservation Commission held the annual workshop at Penn State University in September. Bucks County attended and visited many project sites throughout Centre County. A new administrative manual was also released for the program, with training occurring at this annual workshop.

Bucks County Conservation District is always looking for more applicants and eligible projects within the County to work towards the program's goal of better roads and cleaner streams. To be eligible for DGLVR program funding, a representative from the local entity applying must attend an environmentally sensitive management training (ESM) once every five years. These trainings are offered throughout Pennsylvania by the Center for Penn State Dirt & Gravel Studies and the State Conservation Commission. For more information on the DGLVR program, possible sites to be funded in the future, or the required ESM training, please contact Bucks County Conservation District's Dirt & Gravel/Low Volume Road Administrator Morgan Schuster at mschuster@bucksccd.org.

One of the projects in Tinicum Township is highlighted on the following page.

Dirt & Gravel/Low Volume Roads (DGLVR) Program 2019, continued

Stagecoach Road, Tinicum Township

Stagecoach road in Tinicum Township was one of the new contracted projects for 2019. It includes a half mile stretch of unpaved road located in the Township's scenic view overlay district. All the runoff water drains to Tinicum Creek, which is an exceptional value watershed. The proposed work includes installing new cross-pipes to help move the water across the road and to stop it was from collecting on the driving surface. Tinicum Township also will reshape the ditches to allow water to directly run to these cross-pipes and off the road surface. The entire stretch will then be overlaid with Driving Surface Aggregate (DSA) to create a better driving surface. In the Dirt & Gravel Program, DSA is commonly used as the surface layer and creates much less erosion and runoff material than typical dirt or gravel roads. All of the work is proposed to be completed in Spring of 2020.

Stagecoach Road before proposed improvements

Large amount of sediment traveling in the ditches before proposed improvements

Watershed Programs

Below are a few of this year's highlights in our watershed program in 2019. For more information, contact BCCD's Watershed Specialist, Meghan Rogalus.

Watershed Outreach and Technical Assistance

In 2019, BCCD's Watershed Specialist conducted twenty (20) outreach events reaching approximately 1,300 people on topics including nonpoint source pollution prevention, invasive species, lake and pond ecology, and stormwater management. Events included but were not limited to presentations to elementary school groups, a retirement community, and the Keystone Chapter of the Association of Builders and Contractors as well as exhibits at public events.

BCCD's Watershed Specialist also provided technical assistance to 138 watershed stakeholders throughout 2019. Topics of assistance ranged from addressing general natural resource questions, information on funding opportunities for projects and clarifying regulatory requirements for streambank stabilization projects.

Lake Luxembourg Wetland BMP Project

With funding from USEPA and PADEP Section 319 Nonpoint Source Program, BCCD has spent the last few years working with consultant Princeton Hydro on a project to design and permit a regional stormwater wetland best management practice in the 'Conservation Pool' of Lake Luxembourg in Core Creek County Park. Lake Luxembourg's Conservation Pool is the 17-acre area east of Woodbourne Road. When Lake Luxembourg was created as a multi-use reservoir in 1977, it was estimated the Conservation Pool area would act as a settling basin, capturing sediment washing in from the watershed over the next 100 years. Unfortunately, the pool reached capacity within nine years and is now a source of sediment to the main body of the lake.

Lake Luxembourg and Core Creek have regulatory targets to reduce nonpoint source pollution, called Total Maximum Daily Loads (TMDL). Restoring the Conservation Pool by establishing a regional wetland BMP will bring Lake Luxembourg within its targeted reduction for total phosphorus and make significant progress in reducing sediment loading to Lake Luxembourg, Core Creek, and downstream Neshaminy Creek.

Rich Krasselt, BCCD E&S Technician, and Jason Oseredzuk, PADEP Biologist, walk within wetlands adjacent to Lake Luxembourg Conservation Pool during a September 2019 site visit with the US Army Corps of Engineers. Photo Credit: Gretchen Schatschneider

Watershed Programs

Lake Luxembourg Wetland BMP Project cont.

This large-scale project will generate substantial improvements to water quality, but it also has a large construction budget: approximately 2.1 million dollars. In 2018, BCCD secured a commitment from the County of Bucks to contribute up to 1 million dollars toward this project; and in September 2019, BCCD was awarded funding from the Commonwealth Finance Authority for an additional $300,000.

Although progress has been made toward fundraising, we are not quite there. Over 2019, BCCD has continued to apply for funding to cover the remainder of the implementation costs. In addition to seeking implementation funds, this year the design and permit project funded by the USEPA and PADEP Section 319 Nonpoint Source program was finalized, specifically, construction plans and a bid packet were finalized and project permits (Joint Permit and NPDES permit for Construction Activity) were secured. BCCD plans to initiate major construction on this project in August 2021 if the remaining implementation funds are awarded in 2020.

Poquessing Creek Monitoring Program

Pennsylvania Environmental Council (PEC) contracted with BCCD again in 2019 to continue the Poquessing Creek Monitoring Program. The Poquessing Creek watershed is located in Philadelphia, Lower Moreland Township in Montgomery County and Upper Southampton, Lower Southampton and Bensalem Townships in Bucks County. It is one of several sub-watersheds within the Upstream Philadelphia cluster of the Delaware River Watershed Initiative (DRWI), a 35 million-dollar water quality improvement project funded by the William Penn Foundation. As the Poquessing Monitoring Coordinator, Meghan is working with PEC, the Friends of the Poquessing Watershed (FOPW), other Upstream Philadelphia Cluster partners and local volunteers. Each quarter Meghan has worked with volunteers and BCCD staff members to collect stream channel measurements and water quality samples (nutrients, sediment, and chloride) upstream and downstream of locations in the creek where restoration projects have recently been completed or are planned. Benthic macroinvertebrates (the stream equivalent of canaries in a coal mine) were also collected at two sites annually.

Jim Walter, Penn State Master Watershed Steward and Poquessing Streamkeeper, smiles for the camera while using a probe to collect in situ water quality data on Poquessing Creek during a light snow in February 2019.

Watershed Programs

Poquessing Creek Monitoring Program cont.

In addition to water quality monitoring, Meghan coordinates a team of volunteer 'Streamkeepers' who complete visual assessments at locations along the Poquessing and its tributaries. Combined with the quarterly sampling, these citizen scientists' observations are a valuable way to assess the condition of the entire watershed while also improving people's connection to the creek. Please contact Meghan if you are interested in joining the Poquessing Streamkeeper team!

Special thanks to Master Watershed Steward/Poquessing Streamkeeper Jim Walter and Poquessing Streamkeeper Leslie Longaker, and BCCD staff members Jason Maurer and Rachel Onuska for their assistance with the water quality and macroinvertebrate monitoring program this year.

Jason Maurer BCCD E&S Technician & Education Coordinator, and Rachel Onuska, BCCD Agricultural Conservation Technician, pause to smile for a photo during macroinvertebrate collection on the Poquessing Creek.

Jim Walter, Penn State Master Watershed Steward, and Ashlin Brooks, BCCD Summer Intern, measure channel width at a sampling site on a Poquessing Creek tributary in May 2019.

Invasive Water Chestnut Control

In mid-July, BCCD staff, community volunteers, Bucks County Department of Parks and Recreation, Delaware Canal State Park, Pennsylvania Department of Environmental Protection (PA DEP), and Keep Bucks County Beautiful collaborated on the eleventh annual plant removal project at Lake Towhee County Park. Ninety-eight volunteers logged a collective 603.75 hours over three workdays, removing approximately 36 cubic yards of water chestnut from the lake by hand. The plants were loaded into the District's pickup trucks and hauled to a heavily wooded and secluded section of the county park to decompose. This event is timed to prevent the plants from releasing their seeds which will help mitigate its spread downstream to Lake Nockamixon and has also made a significant dent in the population at Lake Towhee! Special thanks to Delaware Canal State Park and Bob Adams, friend to BCCD, for loaning kayaks, paddles, and PFDs for volunteer use during these events. And an extra special thanks to the entire staff of BCCD for the group effort required to coordinate these events!

Watershed Programs

Invasive Water Chestnut Control, continued

In addition to the volunteer pull, BCCD was awarded a PADEP Growing Greener Grant in Spring 2018 to expand our water chestnut management efforts in the Dimple (aka locally as Kimples) Creek watershed which contains Lake Towhee. This year, BCCD contracted with Aqua Link, Inc. to chemically control water chestnut (*Trapa natans*) and hydrilla (*Hydrilla verticillata*) within Lake Towhee. Four treatments were completed this season within 20 acres of the 50-acre lake, and another round of treatments is being planned for 2020. The Growing Greener project also includes annual monitoring of the presence and density of water chestnut in the watershed. Thanks to BCCD's 2019 summer intern, Ashlin Brooks, for assisting Meghan in the monitoring effort this year!

Meghan and Ashlin assist with water chestnut monitoring

Safe upland disposal of a growing mound of water chestnut (Jason and Ashlin for scale!)

TreeVitalize Watersheds

In 2019 BCCD sponsored the installation of riparian buffer restoration and stormwater basin naturalization projects by administering and providing technical assistance on three TreeVitalize Watersheds grants. In total, volunteers and/or partner organization staff planted 501 trees, 341 shrubs, and 30 herbaceous plants on 11.3 acres through this program. The $25,288.83 in grant funding was leveraged with $43,321.21 in the form of in-kind match, most notably 1,094 hours of volunteer time completing site preparation, project management, and planting day tasks. Our thanks to Pennsylvania Horticultural Society and funders PADEP and Aqua PA as well as the persistence, dedication and hard work of our local partners who make these projects happen. This year's grantees included Bucks County Community College and Neshaminy Creek Watershed Association, Milford Township and Warrington Township EAC.

TreeVitalize Watersheds site along Covered Bridge Trail at Tyler State Park. This project was a collaborative effort between Bucks County Community College and Neshaminy Creek Watershed Association. Volunteers contributed over 1,000 hours of time for this 4.9 acre planting to reforest this section of Tyler Park!

Agricultural Conservation

The Bucks County Conservation District's (BCCD's) agricultural program had a busy year! A data analysis for research completed through a SARE grant, lots of conservation designs and construction checks for repairing gullies accelerated by 2018's heavy rains.

Act 38 Nutrient Management

BCCD administers Pennsylvania's Act 38 Nutrient Management program. Farms with an annualized animal density of 2,000lbs per acre or more are classified as Concentrated Animal Operations (CAOs), and are required to have a nutrient management plan. Bucks County has 15 CAOs, all are equine farms. Two of those CAOs got either new nutrient management plans (NMPs) or NMP updates in 2019. BCCD's Agriculture Conservation Technician (ACT) wrote and submitted a NMP for a volunteer animal operation (VAO) to wrap up her final certification.

Outreach/Education

BCCD continued its agricultural conservation outreach efforts in 2019. BCCD's ACT presented manure regulations and equine-related best management practices at Delaware Valley University's Horse Owner's Educational Seminar. BCCD also presented agricultural best management practices and regulations to a soils class at Delaware Valley University. At Penn State Extension's Pesticide Update Meetings, BCCD taught farmers about spotted lanternfly control options as well as an analysis of how good soil conservation practices mitigate concerns from intense rainfall events.

Gully erosion from 2018 fall storms

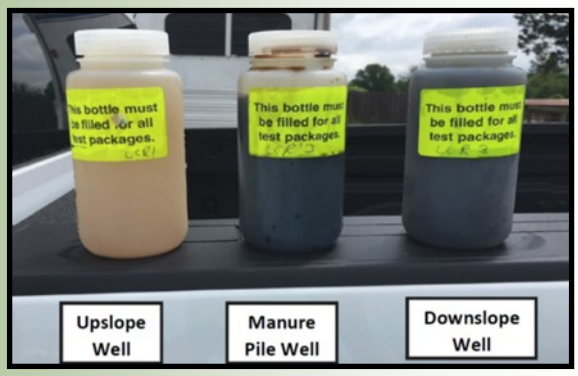
***S**ame location Fall 2019 after grading, seeding and stabilization .*

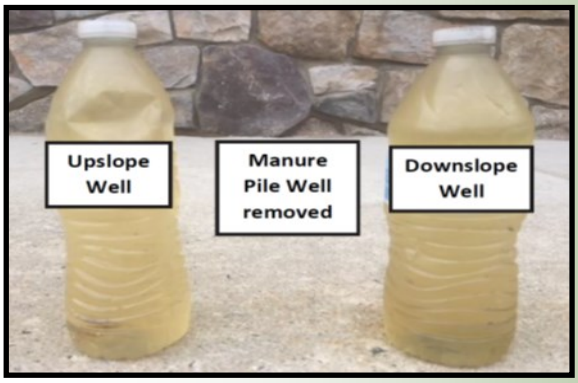
Agricultural Conservation (continued)

SARE grant to evaluate manure stacking on soils with seasonal high water tables (SHWT)

BCCD has a Sustainable Agricultural Research and Extension (SARE) program to study equine manure stacking and seasonal high water tables. Ground water monitoring wells were installed on 4 local farms. Each farm had three ground-water monitoring wells installed: one upslope of the manure stacking area, one at the manure stacking area, and one 50ft downslope of the manure stacking area.

The purpose of the study is to evaluate the degree that nitrogen and phosphorus from the manure pile are moving downslope through the seasonal high water table. BCCD, with help from Rebecca Bourghault, former soil science professor at Delaware Valley College, analyzed soil and water data collected for the SARE grant. The below graphics quantify the water quality improvement of a SHWT resulting from construction of a improved manure storage.





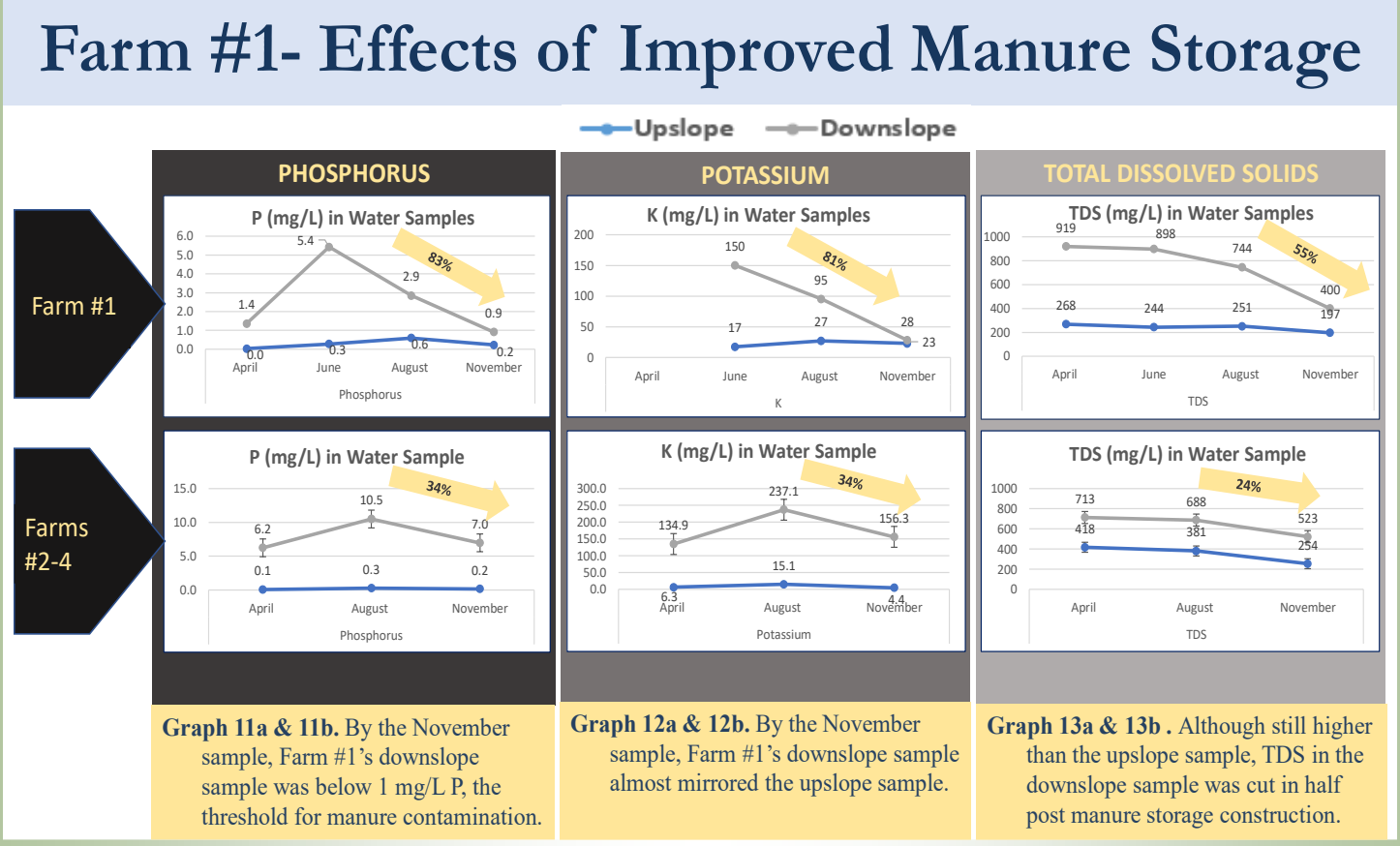
BEFORE: *Farm #1's manure pile and ground water samples.*

AFTER: *Farm #1 after a roofed stack pad was installed at the same location. Groundwater samples are from 2 months after the roofed stack pad was installed.*

Agricultural Conservation (continued)

SARE grant to evaluate manure stacking on soils with seasonal high water tables (SHWT)

The graphs below the quick response Farm #1 showed to the manure storage improvement. The graphs below only show the upslope (the control) and the downslope water samples. BCCD expected nutrient levels from the water samples at the manure pile to be high. The main objective of the study was to determine to what degree the SHWT serves as a channel to deliver those nutrients at the manure pile downslope. Likewise , the below graphs only show water sample data from the upslope and downslope locations.



Graph 11a & 11b. By the November sample, Farm #1's downslope sample was below 1 mg/L P, the threshold for manure contamination.

Graph 12a & 12b. By the November sample, Farm #1's downslope sample almost mirrored the upslope sample.

Graph 13a & 13b . Although still higher than the upslope sample, TDS in the downslope sample was cut in half post manure storage construction.

Farms #2-#4 did not have any improvements done to their manure stacking sites. As illustrated by the graphs above, Farms #2-4 still had reductions in nutrients from the summer to the fall water samples,. However, the decreases observed from Farm #1 post construction were 2-3 times more those of Farms #2-4. Farm #1 was the only farm where the SHWT downslope of the pile no longer had phosphorus levels indicating manure contamination.

Fred S. Groshens Conservation Farmer of the Year

Each year, the BCCD and Bucks County Commissioners are proud to present the Fred S. Groshens Conservation Farmer of the Year Award to "a farmer who has furthered conservation in Bucks County by addressing resource concerns on their farm as they pertain to the health and maintenance of soil, water, air, animals, plants or humans."

2019 Farmer of Year

Bolton's Turkey Farm
Ryan Buckwalter & Todd Bolton
83-ac operation, 30-ac home farm,
Perkasie, PA

Bolton's Turkey Farm was established in 1933 as a chicken and beef farm. In the mid 1980's the Bolton's added a farmstand, which grew into a farm store in 1990.

Bolton's, which is now farmed by third and fourth generation farmers – Todd Bolton is a third-generation farmer of the Bolton family. Ryan Buckwalter worked on the farm as a teenager and grew to love both farming and the farmer's daughter, Kelby Bolton. Ryan continued to work on the production end of the farm while getting his Agricultural Business degree from Delaware Valley University. Today, Bolton's Turkey Farm has grown to raising and processing 10,000 turkeys, 12,000 broilers and 45 beef cows a year. In addition to poultry and beef production, Bolton's also manages 6 acres of vegetables, 75 acres of hay, and 15 acres of pasture.

Fred S. Groshens Conservation Farmer of the Year

(continued)

Below are some reasons why Bolton's Turkey Farm was the 2019 winner:

Nutrient Mgmt, Roofed Manure Storage and Grassed Waterways

BEFORE: Lack of improved manure storage required all-year manure spreading, creating nutrient runoff concerns.

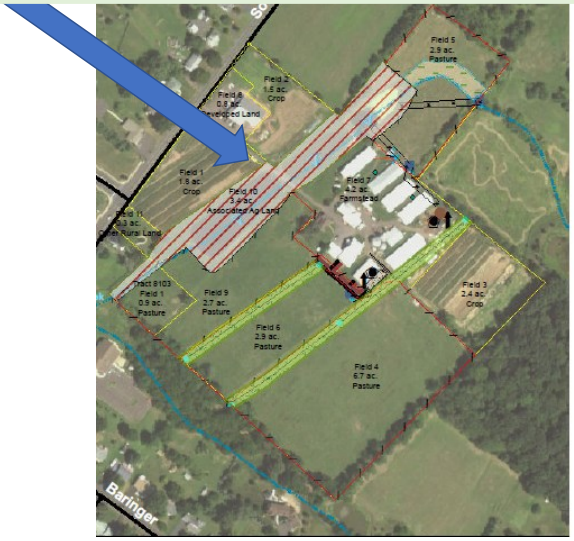
AFTER: Improved manure storage, better nutrient management planning reduced runoff concerns. Grassed stormwater structures throughout the farm fixed gullies and improved water quality.

Fred S. Groshens Conservation Farmer of the Year

(continued)

Animal Exclusion - Riparian Corridor

Animals fenced from series of ponds. Striped area shows animal exclusion zone



Manure BMPs- Cattle Heavy Use Area (HUA)

2019 Envirothon Competition

We were thrilled to return to the campus of Delaware Valley University for the 2019 Envirothon competition. One difference? More sunshine this year! Once again, tons of support from University event staff, faculty, and student volunteers made this a great event. Thanks especially to the soils judging team from Del Val, which sent a number of volunteers to help out with the soils testing station.

We were excited to welcome a larger attending group this year, with 7 schools sending 15 teams, totaling 71 students. Neshaminy High School was once again our County champion and went on to place 25th out of 66 counties at the State competition. At our County event, congratulations also go to our 2nd place finishers from Central Bucks East and our 3rd place finishers from Quakertown Community High School.

Thanks once more to our partners at PA Fish and Boat and Game Commissions, the DCNR, PADEP, aforementioned University volunteers, and BCCD staff, without all of whose time and support we wouldn't be able to hold such an awesome event.

Clockwise from top left—teams at the Aquatic Ecology station; 1st place team from Neshaminy High School; 2nd place team from Central Bucks East; 3rd place team from Quakertown

Bucks County Conservation District

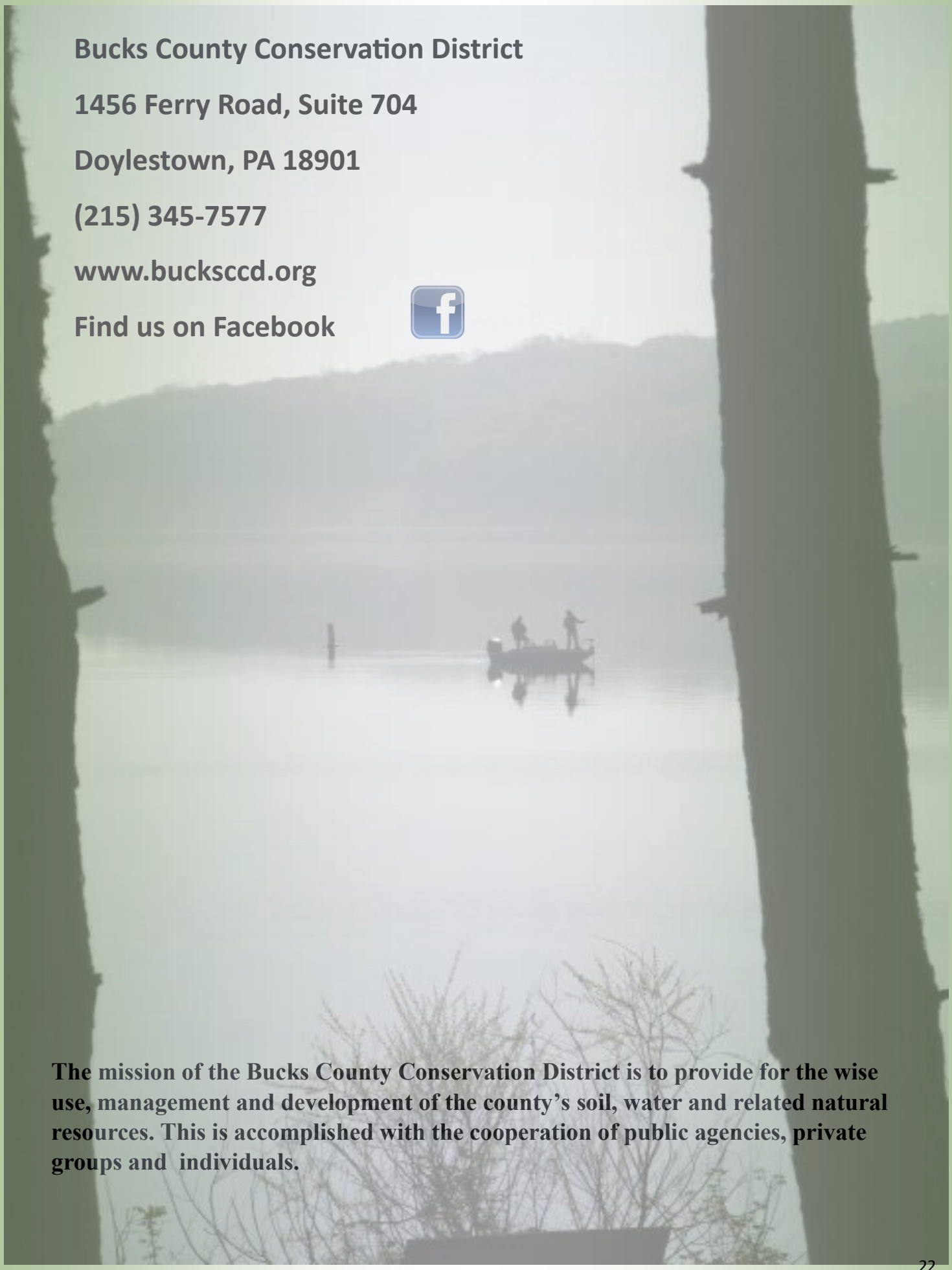
1456 Ferry Road, Suite 704

Doylestown, PA 18901

(215) 345-7577

www.bucksccd.org

Find us on Facebook



The mission of the Bucks County Conservation District is to provide for the wise use, management and development of the county's soil, water and related natural resources. This is accomplished with the cooperation of public agencies, private groups and individuals.