

## "The Dirt" A Resource for Local Conservation



### MCCD Welcomes New District Engineer, Elise Eggert-Crowe

The Montgomery County Conservation District welcomes a second Engineer to our staff! Elise Eggert-Crowe P.E. joins MCCD with experience in the public utility sector and civil and water resources engineering consulting, where she specialized in green stormwater infrastructure design and permitting in the Philadelphia region. Elise has a passion for sustainability and enjoys implementing solutions that reduce the impact of everyday activities on the environment. Elise holds a Bachelor of Science degree in Environmental Engineering from Drexel University and a Master of Science degree in Environmental Engineering from Vanderbilt University. Elise enjoys gardening, cycling, backpacking, and making pottery. Please help us in welcoming Elise to our MCCD team!

## Riparian Buffers Installed at Sebastian Riding Associates and Variety Children's Charity

*Brian Vadino, Watershed Specialist*

In October 2021, Montgomery County Conservation District staff worked with partners to install riparian buffers at two project sites along tributaries to the Skippack Creek. The projects were made possible by the TreeVitalize Watersheds Grant program, managed by the Pennsylvania Horticultural Society, with funding from the Pennsylvania Department of Environmental Protection's Growing Greener program, PECO and Aqua PA for projects located within its source water protection zones.

MCCD partnered with [Sebastian Riding Associates](#) and volunteers from Harleysville Rotary and AD USA to plant 105 native trees and shrubs, with mulch and tree protection, to create a half acre buffer within their therapeutic horseback riding facility in Evansburg State Park.

MCCD also partnered with [Variety Children's Charity of Philadelphia](#) and volunteers to plant, mulch and protect 50 native trees and shrubs to create a 0.25-acre buffer at their facility in Worcester Township.

The primary objectives of these projects are to improve water quality, filter runoff, reduce soil erosion, and improve wildlife habitat conditions. The plantings also provide educational benefits for project participants and site visitors. Native plant species selected include Arrowwood Viburnum, American Hornbeam, Eastern Redbud, Persimmon, Pin Oak, River Birch, Shadbush Serviceberry, Smooth Alder, Swamp White Oak, Sweet Bay Magnolia, Sweetgum, and Tulip Poplar.

Special thanks to all project funders, partners, staff, and volunteers for making these projects possible!



## Upcoming Workshop:

### Lawn To Meadow Free Demonstration Planting Event

**Friday, November 19th  
10AM - 11:30AM  
Skeppack Church  
520 Collegeville Rd.  
Collegeville**

Attend this free demonstration event to learn about lawn to meadow conversion. The Montgomery County Conservation District has a no-till drill seeder available for use on a first come first serve basis for naturalizing basins or currently mowed turf areas.



### Environmental benefits of naturalized areas include:

- Increased infiltration and stormwater management
- Reduced runoff and flooding
- Improved aesthetics
- Reduced mowing maintenance and expense
- Educational opportunities
- Beneficial wildlife and pollinator habitat
- Municipalities: potential for MS4 credits

**Email Abby Reiter to register  
[areiter@montgomeryconservation.org](mailto:areiter@montgomeryconservation.org)**

***Registration required - Registrants will be contacted regarding postponement in the event of inclement weather.***

## Cover Crops for your Home Garden



Fall and winter is the perfect time to prepare your garden beds for springtime! While a chilly time to be outside working in the garden, winter is a crucial time to prepare for next season. Think "putting your beds to bed for the winter."

Cover cropping is a great way to add nutrients and organic matter to your soils, while also keeping the soil covered over the winter. A cover crop is a living plant that protects your soils year-round. Cover crops help to hold soil in place, suppress weeds, build organic matter and retain nutrients. All benefits that will aid in producing more successful warm season

crops or flowers. Cover cropping is a very low maintenance (and relatively inexpensive) way to keep your garden fertile over winter. It is always a good practice to have your soils tested to determine nutrient requirements and recommendations annually. Penn State Extension offers soil testing services. Kits can be purchased from your County Extension office.

### Cover Crop Species and Planting Guidelines:

Planting a cover crop mix, including multiple species, will provide maximum benefit to your garden. This should include legumes, brassicas, and grass species.

- Legumes are nitrogen fixers, meaning they convert atmospheric nitrogen into plant-available forms of nitrogen. Examples of legumes include crimson clover, hairy vetch and winter field peas. It is advised to inoculate legume seed with species-specific rhizobacteria for maximum nitrogen fixation to occur.
- Brassicas include turnips, tillage radish and mustards. These can help to reduce compaction and elevate nutrients from lower in the soil profile to be usable by crops.
- Grass species such as ryegrass, buckwheat and oats are beneficial to add to a mix. They add organic matter and benefit soil moisture retention if used as a mulch in the spring. Oats also make a great "trellis" on which winter field peas and vetch grow.

After garden clean up in the fall, remove any large debris, and rake to create a smooth seedbed. Broadcast the cover crop seeds, gently rake them in, and water. Fertilizer can be added in the fall to jumpstart your cover crops, as well as to provide nutrients for spring availability.

Plant your cover crops at least four weeks before the first frost to ensure maximum growth and benefit. Some cover crop species are "winter killed" meaning they grow during the fall, but they then die off with the first frost and their roots stay in the ground over the winter, but they are not actively growing. Others require termination in the spring, cutting or mowing the crop down and incorporating it into the soil before planting. Another option with taller cover crops is to cut it down and create a mulch or mat that can be transplanted into. This can be great for summer crops such as tomatoes, peppers, eggplant or even potatoes.

Planting cover crops in your home garden or raised beds can help to reduce soil compaction, prevent erosion, suppress weeds, maintain soil moisture, support soil microbes and increase overall soil health and structure.

## Winter Home Gardening



*Elise Eggert-Crowe P.E., District Engineer*

With many homeowners starting or expanding gardens in the past few years, (think COVID projects!) the focus always trends towards bountiful summer harvests. Did you know you can keep your garden growing through the fall and winter months as well? Depending on your gardening goals, there are several options to stay busy in the garden through the cooler seasons. As a reminder as you look through labels on plants and seed packets, recall that Montgomery County falls within the USDA Plant Hardiness Zone 6. It is important to select plant species that are adapted to our climate.

#### Cool Climate Vegetables

If you want to continue harvesting fresh produce into the winter, choose hardy vegetables that can tolerate light frost. Plants started indoors are likely to be more successful. As a general rule, plant 4-6 weeks before first frost, to ensure successful establishment, but be sure to check the labels on starter plants and seed packets for plant maturity dates. Covering plants with a blanket or burlap can protect against an unexpected early frosty evening.

Greens: Spinach, flowering kale, chard, mustard greens, arugula

Roots: Radish, carrot, beet, turnip

Alliums: Leeks, green onions, garlic

#### Vegetable Garden Cover Crops

For those interested in using the cooler season to replenish the garden, establishing cover crops can improve the soil for next year's harvest, providing other benefits like reduced soil erosion and improved soil structure. Legumes, through a process called nitrogen fixation, can replenish soils with necessary components for plant life. Other cover crops add organic matter to the soil that provide nutrient benefits as they decompose and can help with weed suppression.

Legumes for Nitrogen-Fixation: Alfalfa, vetch, winter field beans, crimson clover

Organic Matter: Winter rye, winter wheat

#### Eye on Early Spring

Spring-bulb flowers require an extended period of cool temperature to enable the biochemical processes that results in their beautiful blooms. Planting bulbs in the fall is very easy, and with a little patience through cold winter days, you will be rewarded with spectacular spring blooms. Branch out by visiting your local garden center or browsing the website of reputable bulb supplier to find magnificent colors, textures, and shapes you never knew existed!

Early-spring bloomers: Crocus, snowdrops, daffodils, tulips

Mid-spring bloomers: Hyacinth, muscari, fritillaria, tulips

Late-spring bloomers: Anemone, English bluebells, ranunculus

#### Winter Interest

Several shrubs and trees can offer winter color, texture, and bird activity into your landscape. These plants should be established earlier in the growing season in order to be successful through frozen temperatures. Think ahead to next winter and keep your eye out in the garden center for these winter-stunners.

For color: Red osier dogwood, witchhazel, heather, crabapple, flowering kale

For texture: Lavender, hydrangea, paper birch, river birch, prairie dropseed

For bird activity: Holly, winterberry, beautyberry, crabapple

#### Still not sure what to plant?

Check out local arboretums and gardens in the area. As you stroll around, taking photos and notes of interesting plants, which will likely grow well in your garden as well! Some local gardens also offer classes on how to select winter plants. Happy gardening!

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## The New Science Behind Bioretention

*Eric Konzelmann, Resource Conservationist*

After observing hundreds of Bioretention BMP installations over the last 20 years, I've certainly learned a lot about design, construction, and functionality of these fantastic BMPs. A glaring learning point has been the overuse of underdrains in combination with BMP soil mixes that are too high in compost or simply just too high in clay content. BMP

designs often lack adequate definitions or limitations in BMP soil mix specifications, which can certainly lead to a soil that is too high in overall clay content. Topsoil reuse is great, but in Montgomery County, can contain significant clay content which can lead to filtration/infiltration issues. It is generally recommended that BMP soil mixes keep clay content to 10% or less in the overall mix volume to limit issues with extended drawdown times and ponding, stagnant water. Too much compost can lead to nutrient leaching as shown in the photo.



Photo: This under-drain discharge from a Bioretention BMP in Montgomery County, PA shows signs of nutrient leaching. The soil mix in the BMP had a compost ratio of 30% of the overall mix, leading to significant nutrient leaching. (Photo Credit: Eric Konzelmann)

Penn State University has been conducting research on bioretention functionality and published a "Lunch Talk" webinar to share some results. Dr. Lauren McPhillips, Asst. Professor in the Colleges of Civil & Environmental Engineering and Agricultural & Biological Engineering, has provided a 1-hour summary of their research findings in a webinar titled: "Understanding Function of Stormwater Bioretention Basins."

Below is a link to the recording, as well as a summary of the research and presentation.

Bioretention BMPs have been found to have high reductions in stormwater runoff volumes. Organic matter encourages microbial action and aids in the treatment of stormwater, but too much will lead to nutrient leaching. Most bioretention basins are discharging a considerable increase in both nitrate and phosphorus. The increase in nitrate and phosphorus discharge is mainly due to the overuse of compost in the soil mix which is very biologically available and subject to nutrient leaching. The use of woody mulches as organic content in the BMP soil mixes has a much higher carbon to nitrogen (C:N) ratio and is less prone to leaching. In most cases, 5% organics by volume in a BMP soil mix is sufficient for proper BMP function. Where infiltration is limited or non-existent, the use of an internal water storage ("I.W.S." as is seen in the DEP MRC BMP) can provide additional nitrate removal. The saturated soil conditions allow for nitrate reductions and provides for additional volume attenuation when plant roots can access the stored water. Bioretention BMPs have been found to remove heavy metals from parking lot runoff as well.

**Recording Now Available! - Water Cooler Talk: Stormwater Bioretention Basin Functions**  
**Access the Recording:**

[https://psu.mediaspace.kaltura.com/media/Water+Cooler+TalkA+Stormwater+Bioretention+Basin+Functions+Edited/1\\_7dfj8szg](https://psu.mediaspace.kaltura.com/media/Water+Cooler+TalkA+Stormwater+Bioretention+Basin+Functions+Edited/1_7dfj8szg)

## Gravel Road Improvement Project in Marlborough Township funded through the State's *Dirt, Gravel & Low Volume Roads* Grant Program



*Jessica Buck, District Manager*

### *"Better Roads, Cleaner Streams"*

Marlborough Township, with assistance from the Montgomery County Conservation District, was awarded \$14,794.06 in grant funding through the *Dirt, Gravel & Low Volume Roads* grant program, for improvements to Scott Rd. A gravel road with drainage to the Unami Creek, Scott Road benefited from drainage improvements including: two new cross pipes, swale re-grading and roadway crown reconstruction. The goal of this simple yet effective project was improved drainage, to reduce the road surface deterioration, reduce maintenance, and improve water quality through reducing sediment runoff from the road to the Unami Creek.

Funding remains available to public road-owning entities, including municipalities, for roadway improvements with an environmental focus. For more information on the *Dirt, Gravel & Low Volume Road* grant program, please contact MCCC District Manger, [Jessica Buck](#)



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