Rain gardens for sports fields?

Storm water pollutants are a major concern in all of our watersheds throughout the United States. It's a national problem that affects everyone from our local watermen to the food we eat. This isn't something dramatic like the BP oil spill, but a daily concern if we don't take the ecological responsibility to act on behalf of our children, to educate them and ourselves on this problem.

PHOTO 1

I'm not a radical activist you'll see protesting with a picket sign on TV; however, I am a person responsible for my own actions and for the way I conduct myself toward the environment. I'll get to my main point: do you know where the storm water ends up after it leaves your sports fields and goes down your drains? Do you ever stop and take a minute to think about the storm water that comes off your buildings, parking lots and roadways during a rain storm? Where does it go? What harm is it causing? How much water can it possibly be? The fact is that all these questions are loaded ones, but to keep this article short and to the point these are the Best Management Practices (BMP) we practice

Consider this: the amount of rainwater collected from one inch of rain on a 1,000 square-foot horizontal roof is roughly 600 gallons. What if you could capture most of it and filter it before it drained?

PHOTO 2

PHOTO 3

here at St Mary's College of Maryland.

Storm water that is not captured by rain gardens or buffer management systems can carry pollutants from vehicles in parking lots, sewage backups, soil erosion, fertilizers, paints, and pesticides to your local watershed. Consider this: the amount of rainwater collected from one inch of rain on a 1,000 square-foot horizontal roof is roughly 600 gallons. What if you could capture most of it and filter it before it drained?

I'm not saying we shouldn't use fertilizers, paints, or pesticides on our sports fields, because I use them to, so please let me explain. We are all environmental stewards whether we think so or not. We don't just take care of sports fields; we also take care of our environment by stopping soil erosion and maintaining a dust collection system and maintaining a water filtration system from our natural turfgrass fields.

When we apply, paint, pesticides or fertilizers to our sports fields, metals, nitrogen and phosphorus can run off from sheet and soil water movement to our local watershed. It might be a small amount of pollutant, but if each small instance were added up across the nation, the amount would be much greater. This is where best practices become important, to enable us to make a positive difference on a large scale. For example we use EPA approved sports turf paints and organic fertilizers to help eliminate our runoff or volatilizations.

We install rain gardens at St Mary's College as part of our landscape plans with every project we do on our campus (photo 1). We just built one for our intramural (Riviera bermudagrass) turfgrass athletic field (photos 2 & 3). Building rain gardens is easy and affordable. Your local extension office can help you with the building plans or visit http://www.co.worcester.md.us/ for downloadable plans of rain gardens.

Another thing you can do is capture your storm water and reuse it as long as it complies with your local and state regulations. At St. Mary's College, we take the nutrients out of the storm water holding pond (photos 4 & 5) by irrigating our


PHOTO 6


PHOTO 7


PHOTO 8


PHOTO 9

The bermuda turf absorbs the storm water pollutants and filters it for our groundwater table. We test the water for levels of ammonia, nitrites, nitrates and phosphorus at the beginning and end of each irrigation session

bermuda turfgrass. The bermuda turf absorbs the storm water pollutants and filters it for our groundwater table. We test the water for levels of ammonia, nitrites, nitrates and phosphorus at the beginning and end of each irrigation session (photos 6 & 7). The results show a slight decrease of pollutants after three irrigation sessions. Approximately 12,000 gallons were used per irrigation session over 53,440 square feet of grass. One thing to note, however, is that phosphorus reduction from the storm water pond was only effective when there was no rainfall. But using storm water for irrigation saves 100% of your local fresh water supply.

We also put our buffing areas to work for us and the environment. We mow the athletic turfgrass to .75 inches and cut the outside perimeter cool season turf at 2.5 (photos 8 & 9). We then install a naturalized area/meadow around the storm water pond to capture any run-off that might occur.


PHOTO 10


PHOTO 11

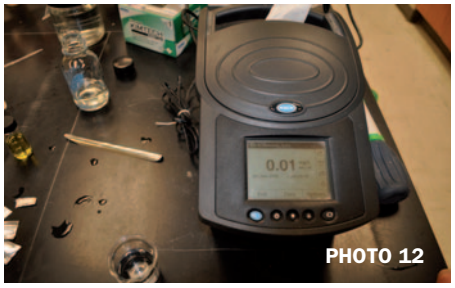
PHOTO 12


PHOTO 13

We place wells for sheet water movement and soil water movement to see how effective our buffer management is (photos 10 & 11). We test for ammonia, nitrites, nitrates, and phosphorus. We apply 46-0-0 before each rain storm. The soil water movement shows little to no movement at all. The sheet water movement wells show high ammonia content in the short grass; medium to low in the perimeter of the higher grass; and zero in the buffer zone with native trees, shrubs, grasses and wildflowers. A HACH testing machine was used for this case study for better accuracy in pollutant readings (photos 12 & 13). However you can use an aquarium test kit from your local pet shop and get similar results.

To get started, take a look at your facility and see the way the water travels in all locations. Where does the water drain from your equipment wash pads, athletic fields, parking lots and buildings? Can you recapture it or at least buffer it? Like anything else, education and experience are key. So if you're reading this, then you care. ■

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