

**Project Name:** Continued Implementation of Golf Course Environmental Stewardship Efforts  
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The New York State Best Management Practices (NYS BMP) project is an innovative research and outreach education program that has resulted from a partnership of superintendent leaders in the state and Cornell University. Begun in 2012, this project has codified standards and actively demonstrates the implementation of BMPs for the protection of water quality on golf courses in the state of New York.

In addition to financial assistance for completing the [Best Management Practices for New York State Golf Courses](#) book and [NYS BMP website](#) four years ago, past TESH grant funded efforts have included a self-assessment survey for golf course superintendents, an educational plan, development of case studies, updated and expanded website and outreach materials, as well as efforts to continue promoting and publicizing the project to superintendents, legislators, regulators, and other interested stakeholders. Continued TESH funding has allowed the NYS BMP program to mature by addressing comprehensive environmental stewardship, development and implementation of a variety of educational and outreach initiatives, and generating dynamic content to increase interest in and awareness of the program. In the April 1, 2017 to March 31, 2018 timeframe, we have accomplished the following:

- Continued managing the NYS website and creating content for website and Twitter feed.
- Innovative demonstration of a low cost wash pad system prototype.
- Updated the NYS BMP quiz and assessment survey.

These efforts were all designed to continue expanding the reach and value of BMP-related environmental stewardship to all stakeholders and policy makers based on the educational and outreach priorities established by the 2017 Educational Plan. These priorities are as follows:

- equipment washing areas
- pesticide and fertilizer storage and handling
- pesticide and fertilizer application
- regulations, such as the phosphorus law
- key elements of a progressive golf turf IPM program
- optimizing irrigation systems
- soil nutrient test interpretation

Our efforts during the grant period were broken down into three tasks. A summary description and results for each task are described below.

## Task 1: Content Creation and Management of NYS Website and Twitter Feed

The BMP website (<http://nysgolfbmp.cals.cornell.edu/>) was substantially redesigned in 2016 with TEF funding. To maintain the dynamic style to continue to attract visitors, the content needs to be frequently updated. The blog section of the website and the Twitter feed (@NYS\_GolfBMP) are the two main areas where new content is added to communicate and educate target audiences.

Because of limited funding, we were able to create only a limited amount of new content during this grant period. This included 11 new blog posts written by Cornell University scientists and based on the priorities identified in our educational plan and additional blog posts written by the NYS BMP Project Manager published in conjunction with other project activities, as follows:

- [Pollinator-Related Resources for Turf Managers](#), April 7, 2017
- [Dollar Spot](#), April 30, 2017
- [Wash Pad Demonstration @ Locust Hill](#), July 27, 2017
- [New Pollinator BMPs Published](#), July 28, 2017
- [Wash Pad Demonstration @ Locust Hill – Construction](#), September 25, 2017
- [Wash Pad Demonstration – Final Construction Activities](#), October 19, 2017
- [Calling all NYS Superintendents](#), December 18, 2017
- [Results of the Low Cost Wash Pad Demonstration](#), December 18, 2017
- [It's not Sexy-The Long Play for the High Ground: Do the BMP Assessment and Survey Today!](#), January 25, 2018
- [Stuck in the Shop? Do a Point Source Pollution Assessment!](#), January 29, 2018
- [“Finding the Baseline”: A Simple Approach to Water Quality Monitoring](#), March 21, 2018

We also generated additional content to be delivered during the rest of 2018 based upon seasonal applicability. These blog posts can be used in future years as well and publicized through Twitter. These blog posts include the following:

- Spring:
  - Assess and Map your Soils
  - Lower DU leads to more uniform soil moisture
  - Managing Turf Density to Enhance Stormwater Management



Figure 1. NYS BMP Twitter feed.

- Summer:
  - Managing Surface Organic Matter
  - What good is the EIQ
  - GPS-guided chemical application
- Fall:
  - Late-Season Nitrogen Use

In addition to blog posts, we used our [Twitter feed](#) to reach our target audience (Figure 1). Twitter was used to tweet about all of the following:

- newly published [blog posts](#)
- existing BMP information
- availability of the newly published [Pollinator BMPs](#),
- updates on the wash pad demonstration project (such as this [final post](#))
- updated [BMP quiz and survey availability](#) (TESF Grant Task 3)

This grant year we added nearly 100 new followers to our Twitter feed. An example of analytics data for the months of February and March 2018 is provided in Table 1.

*Table 1. Twitter Analytics Data, February and March 2018*

<b>Tweets</b>	<b>Tweet Impressions</b>	<b>Profile Visits</b>	<b>Mentions</b>	<b>New Followers</b>
<i>February</i>				
10	23,000	176	12	22
<i>March</i>				
6	13,600	67	6	9

## **Task 2: Wash Pad Demonstration and Written Case Study at Locust Hill**

Locust Hill Country Club served as a feasibility study site for a New York State Pollution Prevention Institute (NYS2PI) project at the Rochester Institute of Technology (RIT) in 2015 to evaluate opportunities to improve mower cleaning operations. This NYS Department of Environmental Conservation-funded feasibility project provided baseline information that was used to design a low-cost mower wash pad system to conserve and recycle up to 90% of wash water.

The real world issue addressed in the demonstration project was the volume of wash water generated by Locust Hill. Being located at the edge of the suburban-rural divide, houses surround the Locust Hill course. Proximity to the equipment wash pad drainage area resulted in adjacent homeowner’s complaints of odors from the discharge. Because functionally organic debris (clippings, leaves, etc.) was already strained from the wash water, addressing the amount of water being used in washing operations was the solution to eliminating odor issues.

For this grant, the NYS BMP project worked with Locust Hill CC, in a partnership that included Rochester Institute of Technology (RIT) and the University of Buffalo, to build out and demonstrate the wash pad based on the feasibility study results (Figure 2). TESH grant funding paid for materials for the wash pad construction through reimbursement to Locust Hill CC. TESH funding also covered Cornell University staff time and travel to document the build out and results.

Dr. Rossi of Cornell University conducted 3 visits to Locust Hill during the demonstration period. The results are documented in a [video case study](#) and uploaded on the [NYS BMP youtube Channel](#). The on-going outreach efforts as described in Task 1 (e.g. blog posts, Twitter feed) were used to publicize this demonstration project to our target superintendent audience.



*Figure 2. First test run of prototype wash pad system at Locust Hill.*

A full project summary has been published on the [RIT website](#). The results of the demonstration were summarized as follows:

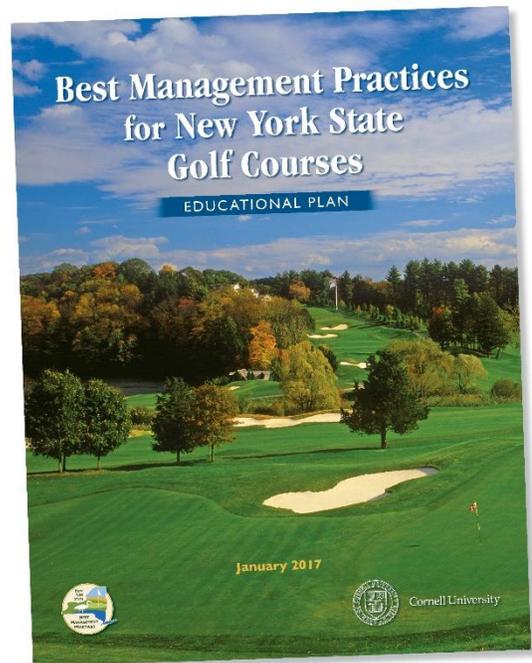
- After reductions of up to 50% using air blowing and different nozzles, approximately 700 gal/day of wastewater needs to be managed. If this wastewater is filtered and reused, overall reductions in wastewater exceed 90%. A screen and sand filter was tested and installed, and a UV lamp was added to help control bacterial growth.
- Equipment costs were approximately \$4,500 (with TESH funding). Engineering support for design and construction was provided by NYSP2I.

- As of Fall 2017, the system was working satisfactorily, and water was recycling through the system.
- The system will be monitored periodically for performance and quantification of water/wastewater reduction.

### **Task 3: NYS BMP Quiz and Survey Update**

The BMP quiz and survey previously funded with TESH grant money provided evidence of superintendent engagement in the BMP project as well as data to direct our educational and outreach efforts. We re-opened the quiz and survey (with a few minor modifications after a short review) in December of 2017 through March 28, 2018. The objectives were to both show an increase in participation in the BMP project by increasing the response rate and to identify any trends in the results.

To promote the quiz and survey, we featured its availability on the front page of the website, wrote blog posts, promoted at turf conferences and on our Twitter feed. The results of the quiz and survey will be evaluated this summer in the context of our existing Educational Plan (Figure 3).



*Figure 3. The Educational Plan serves as a roadmap for education and outreach efforts.*