

CASE STUDY

NEW YORK STATE BEST MANAGEMENT PRACTICES FOR GOLF COURSES



Protecting Pollinators on the Golf Course



Project Details

- **Golf Course Profile:**
Name: Rockville Links Club
Location: Rockville Centre, NY
Annual rounds of golf: ~25,000
Staff: 25
Acreage: 100
Public or Private: Private
- **BMP Implementation:** Practices that provide and enhance habitat for pollinators and protect pollinator health.
- **Budget Items:** Seed costs of \$500-\$750, depending on size of the area.
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Overview

The Rockville Links Club is located in a densely populated suburbanized area of Long Island. As one of the few large green spaces in the area, the golf course provides habitat for a number of species of pollinators, as well as birds and other animals.

For the past four years, course superintendent Lucas Knutson has been identifying opportunities to enhance habitat on the golf course. He has taken advantage of opportunities to renovate, including opening up areas by removing trees damaged by Hurricane Sandy, and is incorporating native plants, establishing wildflower areas, installing bee hives, and adding nesting areas for birds, waterfowl, and bats.

For the pollinators in particular, Knutson has paid extra attention to the best management practices (BMPs) that help to protect both the managed bee colonies and the many species of wild pollinators that visit his course.



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Establishing Native Areas

Native areas have been established in three areas of the golf course: an area surrounding a small pond, and two wildflower areas near the property boundary. In these areas, wildflower blends (including species such as coneflower, cardinal flower, and cosmos) were planted that provide a variety of flowering times, colors, and flowering heights. This diversity of host plants provides season-long foraging sources for many species of bees, flies, and other pollinators.

Initial establishment of wildflower areas required thinning out existing grasses, leaving on the fescue to mix with the wildflowers and planting in the fall (October/November). In very dry years, like the summer of 2016, wildflower establishment required some additional applications of water, though in previous years they did not need to water. While the initial establishment may look a bit sparse, Knutson says that club members have come to appreciate what the wildflower areas will look like when fully established and understand the grow-in process.



(Upper left): The renovated pond area features native plants, managed bee hives, and duck nesting boxes.

(Upper right): Bee hive next to the pond.

(Bottom left): Native flowers the first summer after fall planting.

(Bottom right): Established wildflower area in mid summer. Bee hives and bluebird boxes have been located in this area.



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BMPs for Protecting Pollinators

A number of best practices help to protect pollinators that live on or visit the golf course. Some of these featured best practices are described below. Additional BMPs are detailed in the *New York State Pollinator Protection Plan* (http://www.dec.ny.gov/docs/administration_pdf/nyspollinatorplan.pdf).

Integrated Pest Management Principles

Integrated Pest Management (IPM) is a sustainable approach to managing pests that combines biological, cultural, physical, and chemical tools in a way that minimizes economic, health, and environmental risks and maintains turfgrass quality. Following some of the basic IPM steps (a BMP for all turf-related management decisions) also helps to protect pollinators. More information on IPM concepts and principles can be found on the NYS BMP web site (<http://nysgolfbmp.cals.cornell.edu/ipm/>).

Knutson monitors throughout the season to determine pest presence, location, movement and overall pest pressure. By scouting, he can determine when and if pesticide applications are needed. When chemical control is warranted, evaluation and analysis often allows for early intervention that can reduce the need for further treatment. At Rockville, Knutson reports that typically he only needs one adulticide application and 1 blanket larvae control application for the fairways to control for annual bluegrass weevil. After that, he typically only needs to spot apply.

BMP: Pest monitoring can help to ensure that pesticides are only used when and where their benefits are greater than the cost of the pesticide and its application.

Selecting Products

When pest pressure is great enough that pesticides are deemed necessary, products can be selected using a set of criteria such as the product's effectiveness, possibility of chemical resistance, cost, and environmental risk. Additional considerations for pollinators include selecting an insecticide with low toxicity to bees and short residual toxicity. In addition, granular products are less likely to harm pollinators than sprayable forms.

BMP: When pesticides are deemed necessary, an effective product with low toxicity to bees and short residual toxicity should be selected.

Mowing

Avoid pesticide applications to any plants in bloom, including weeds, to reduce pollinator exposure to pesticides. Before any pesticide application on the golf course, Knutson mows to remove blooms if they are present. This applies not just to the fairways and roughs near the managed hives, but throughout the golf course as both domestic and wild species of bees may be present anywhere on the golf course.

BMP: Do not apply pesticides to blooming plants, including weeds, when bees might be present. Mowing before application removes blooms and reduces pollinator contact with treated nectar.

Irrigating

When neonicotinoids are required for pest control or any ABW larvae application, water is applied afterwards to drive the product into the ground and away from any potential contact with pollinators.

BMP: Water in pesticides to drive product into roots for uptake, unless contraindicated.



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Communication, Outreach, and Education

To increase the native areas on the golf course, Knutson reached out to a number of partners, including the Long Island Native Plant Initiative (<http://www.linpi.org/>) the beekeeper (Walter Blohm), and industry representatives for help selecting seed blends and providing guidance on establishment.

The beekeeper is responsible for installing and maintaining the hives, harvesting the honey, and overwintering the hives. In addition, the beekeeper conducted research on the pollen brought back to the hive by the bees. The results showed that two insecticides were present in small amounts on some of the pollen, but these were insecticides not used on the golf course and therefore came from outside the property. Additional research is planned to study and analyze the beeswax.

Golf course members have been supportive of the project. While some members initially raised concerns about the potential to be stung by the bees, Knutson has not heard of any instances where this has happened since the hives were installed. The bees typically fly out the hives (with the “runways” positioned away from the area of play) and immediately increase altitude to 20 to 30 feet above the ground surface, which limits the potential for contact between bees and golfers. Signage placed in the native area serves to let people know where the hives are located and promote the project as environmentally beneficial.

A three-part video case study with additional detail of the efforts undertaken at Rockville Links and funded by the New York State IPM program (<https://nysipm.cornell.edu/>) will be available for viewing in late November 2016. The link to the video will be found on the NYS BMP web site at <http://nysgolfbmp.cals.cornell.edu/> as soon as it is available.

