

**Title: Pesticide-Free at Cooperstown's Doubleday Field**  
Otsego County New York

**Project Leaders:** Kevin Trotta, MA – Eco-Friendly Turfgrass / Sports Field Specialist  
Joe Harris – Doubleday Field Head Groundskeeper

**Cooperators:** Jennifer Grant, Ph.D. – NYSIPM Program  
Frank Capozza – Doubleday Field Advisory Committee

**Abstract:**

With the support of the New York State Integrated Pest Management Program and the community of Cooperstown New York, the historic Doubleday Field has been managed during the 2012 baseball season with an emphasis on implementing alternatives to the use of conventional, synthetic pesticides. Established field management practices were closely examined and adjustments made as needed. New techniques, systems thinking, experimentation with new, reduced-risk products and the employment of biological controls were incorporated in a progressive sports field management program. Using advanced, high-level IPM, the desired standards of field playability and aesthetic quality were successfully maintained while pesticide risks were mitigated.

**Background and Justification:**

The Village of Cooperstown, like many communities around the country, has begun to question the use of pesticides on village property. One very high profile village property is the much-loved (and much-used) Doubleday Field, Cooperstown's 'Birthplace of Baseball'. Voted the Sports Turf Managers Association's 2004 Baseball Field of the Year, this diamond hosts over 250 events per year, presenting a world class management challenge. Unlike a residential lawn, a ballfield is subjected to the tremendous demands of withstanding intensive traffic under a range of climatic conditions. These stresses contribute to vulnerability on the part of the field's turfgrass to amplified pressures from common pests like weeds and turf diseases. The conventional strategy of addressing turfgrass pests with synthetic pesticides has come under increased scrutiny as the general public weighs the potential health and environmental risks associated with these chemicals. These concerns have prompted the Village of Cooperstown, the Doubleday Field Advisory Committee, and this project team to explore the feasibility of a complete elimination of the use of synthetic pesticides.

**Objectives:**

- 1) To eliminate the potential risks associated with chemical pesticides by suspending their use for the length of the project so long as results continue to meet standards and expectations for the quality and appearance of the field.
- 2) Maintain field quality that meets or exceeds the expectations of stakeholders.
- 3) Project evaluation
- 4) Document and publicize results

### **Procedures:**

- 1) Strict adherence to the core cultural practices of fertilizing, aerating, overseeding, topdressing, mowing, etc., were emphasized as the first line of defense against turfgrass pests. IPM entails much more than just substituting one product for another.
- 2) An organic, clove oil herbicide (EPA 25B) and mechanical cutting were used as alternatives to the non-selective herbicide glyphosate.
- 3) The use of the fungicide propiconazole was discontinued and replaced with optimizing fertility, compost topdressing and mowing modifications for the management of snow mold.
- 4) A reduced-risk, chelated iron product was used as an alternative to conventional herbicides in a trial to manage the difficult broadleaf weeds *Veronica filiformis* and *Glechoma hederacea*.
- 5) A minimum-risk, sodium chloride-based product (EPA 25B) was used as an alternative to conventional herbicides in a trial to manage *Trifolium repens*.
- 6) Entomopathogenic nematodes were used as a biological control of white grubs.
- 7) The project team met monthly to assess field conditions and progress, and documented site visits with photos throughout the growing season. Details of this project will be publicized.
- 8) The process of developing long term strategies was initiated.

### **Results:**

The field management practices, and the field itself, were assessed to determine where the need for pesticides could be avoided. Pesticides have been used previously at Doubleday Field to treat the following areas and pests:

1. Warning track – non selective herbicides
2. Under bleachers – non selective herbicides
3. Field – herbicides to control broadleaf weeds
4. Field – insecticide for grub control when needed
5. Field – fungicide for preventive snow mold control

In the one season of this project, the above situations were addressed as follows:

1. Warning track – A clove oil based product and mechanical removal were substituted for glyphosate. A propane burner was also employed in some areas. These combined practices provided adequate control but required additional labor.
2. Under bleachers – The clove oil based herbicide was substituted for glyphosate in replicated areas. Other areas were treated with glyphosate as a comparison. Two applications of the minimum-risk product were sufficient for control in 2012 but required double the labor of the single glyphosate application.
3. Field – Cultural practices are considered the first line of defense against weeds. A minimum-risk, salt-based herbicide and an iron-based reduced-risk product were also tested on small areas of the outfield. Preliminary results show that the sodium chloride product may be useful for clover control and the iron HEDTA product for ground ivy.
4. Grubs – The field was sampled in August. An average of 10 grubs (predominantly Japanese beetles, 1<sup>st</sup> and 2<sup>nd</sup> instars) per square foot were found, with populations as high as 30 grubs/ft<sup>2</sup> in some areas. Beneficial nematodes (*Heterorhabditis bacteriophora*) were applied at a rate of 1.5 billion juvenile nematodes per acre in early September. Damage from both grubs and vertebrate predators were no longer visible within a week after treatment. Counts in October averaged 1.5 grubs/ft<sup>2</sup>, a reduction of 85%.
5. Snow Mold – No fungicides were applied this year. No supplemental nitrogen or potassium fertilizer was applied in autumn. A compost topdressing was applied in late November. Clipping height was reduced slightly for the final mowing. The field will be assessed in spring to evaluate possible disease incidence and damage.

~ In addition to the procedures implemented and tested in 2012, several long range improvements were discussed and suggested:

- Add warning track material to increase its depth to better suppress weeds.
- Cover the soil under the bleachers with a weed barrier fabric.
- Replace conventional wasp spray with botanical-based EcoPCO
- Monitor potassium levels in the sand-based infield rootzone
- Adjust management budget for increased labor and materials
- Closely monitor weed populations
- Utilize organic and zero-phosphorus fertilizers
- Spot seed heavily trafficked areas routinely with perennial rye
- Consider designating a Village IPM Committee
- Explore the possibility of continuing this project

### ***Discussion:***

The Project Team set out to determine whether Doubleday Field could be successfully managed without synthetic pesticides. We made enormous progress toward answering that question. But the reality of an impending winter, and the end of the growing season, signaled an unwelcomed break in our efforts. Our results to date, however, do verify that a transition away from the conventionally accepted norm of a product-based paradigm, to an ecological paradigm, is absolutely feasible and strongly recommended.

Satisfying the playability, aesthetic and safety requirements of players is a responsibility common to all sports fields. Doubleday is unique in its status as a ‘shrine’ to the game and an important tourism component. The thousands of camera-wielding visitors to Cooperstown, who arrive with their own expectations of archetypal ballfield excellence, are themselves players in driving the Village’s economic engine. Ultimately, it should be a deliberated standard of field quality that determines the community’s degree of tolerance of potential field imperfection. Efforts should be coordinated to establish functional and visual standards, pest thresholds, and protocols that are both environmentally sensitive and preserve the Village’s assets. We suggest the development of an Integrated Pest Management policy and IPM plan: to reduce risks from pests and from the strategies selected to manage them. IPM is a decision making process that can be well suited to democratic administration. At this juncture, an outright ban on the use of pesticides at Doubleday Field might not prove to be in the best interests of the Village. For example, the presence of the exceptionally aggressive Veronica species on the field poses a serious threat. These weeds are being addressed with the reduced-risk iron-based herbicide we have introduced during this project. If this strategy proves ineffective in managing this notoriously difficult species, it would be reasonable to have the option of utilizing an affordable herbicide with a higher hazard potential but with demonstrated efficacy. If deemed absolutely necessary, a conventional pesticide may offer a ‘rescue’ treatment, to clean the slate and clear the way for a more environmentally sound imperative.

Because of the high-profile, iconic stature of Doubleday Field, the potential impact of this project should not be underestimated. By confronting the concerns of the community and proactively seeking alternative methods of ballfield management, this project offers an example of cooperation, communication, critical thinking and transparency: a progressive example for other communities to follow. The state-of-the-science, open-minded pursuit of risk reduction is a noble effort that can unite this village much as does the pride in our national sport. By investigating, identifying and implementing eco-friendly methods of sports field management, we demonstrate a model of environmental stewardship for all in the Chesapeake Watershed and an exemplar for sports and recreational facilities everywhere.