

TOWN OF PITTSFORD

SETTLED 1789

Department of Public Works

11 SOUTH MAIN STREET, PITTSFORD, NY 14534

TEL. 585-248-6250 FAX 585-248-6262

Integrated Pest Management Plan Town of Pittsford

**Jess Neal – General Foreman, Parks Department
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The Town of Pittsford's Parks Department has made minimal use of non-organic pesticides as a field management tool for many years. These products are employed only when no other treatment will be effective, or if costs or field-scheduling constraints are significant issues.

As a municipality, fiscal responsibility is an important part of the budgeting process. Non-organic pesticides provide an economical and effective way to prevent damage from grubs or weed infestations. Alternative methods that we have researched or tried in the past are unreliable or ineffective and are almost always very expensive. The Town has committed to re-examining our strategies and investigating new potential solutions to pest problems. That said, I would like to stress that on our athletic fields, non-organic pesticides have only ever been used to improve functionality and safety. They have never been used to merely improve aesthetics, as some have implied.

As General Foreman of the Parks Department, a "duty of care" is placed upon my shoulders in regard to turf management on our athletic fields. This includes maintaining fields with a thick, hardy, and safe stand of turf, free of overpopulations of weeds and grubs which can undermine footing on the field and create dangerous situations for our athletes. Adhering to the standards of our duty of care protects the Town from liability and legal actions. Additionally, the Town spent \$7 million dollars on renovating our worn out athletic fields in 2015. Given this investment of taxpayer money, users have high expectations of our field conditions.

Our fields host a number of Section V games, and athletes, referees, and parents expect fields that provide safe footing and traction. In fact, the high demand by high school and adult athletes for our fields is a large part of the struggle to keep them in good condition. Cleats are brutal on grass, and many of these fields are used nearly every day from April to the end of October. Our field maintenance practices involve a never-ending task of aerating, fertilizing, and overseeding, as well as pest management.

When examining the Town's pesticide usage, consideration should also be given to the amount of training our applicators have to go through before they are licensed and legally allowed to apply such products. We must attend a rigorous 30-hour course, which covers topics such as: ecology and environmental considerations of pesticides

on land and water, toxicity, personal protective equipment, calibration, entomology and plant pathology, Integrated Pest Management (IPM) strategies, and security, transportation, storage, and disposal of chemicals. The course culminates in a 3-hour exam, which must be passed before earning a technician's license. Technicians must apply chemicals under the guidance of a Certified Applicator. With a few years of experience, technicians may petition the NYSDEC to earn their Certified Applicator license. The NYSDEC also requires 10 credits of continuing education before renewing our licenses every 3 years. The State does an excellent job of ensuring that applicators are educated, responsible, and environmentally aware.

Due to a steady flow of misleading and sometimes outright false information being provided by residents at Town Board meetings and by others on social media, we note that the only applications to athletic fields in 2018 were grub preventative insecticides, based on a history of the insects causing damage. The Town does not use Roundup on athletic fields. We had several applications of RoundUp in mulch beds and around pavers, to combat crabgrass and broadleaf weeds. The few other applications were made upon resident request. We make every effort to keep chemical use to a minimum, which brings us to the topic of Integrated Pest Management.

Integrated Pest Management

The Town of Pittsford is committed to employing Integrated Pest Management strategies with the goal of maintaining the safety and structural (non-cosmetic) quality of our athletic fields to keep them fit for their intended use. In this endeavor, it is important to have a clear understanding of what IPM is, and how it is implemented.

In New York State in 2019, Senator Catharine Young (R) and Assemblywoman Aileen Gunther (D) have introduced legislation (S920/A3632) defining Integrated Pest Management as:

“Integrated Pest Management means a systematic approach to managing pests that utilizes a diversity of management options to minimize health, environmental and economic risks and impacts. These options may include biological, cultural, physical, and chemical tools to prevent pest infestations or reduce them to acceptable levels.”

This is the same definition recognized by:

- Food Quality Protection Act of 1996.
- The National Integrated Pest Management (IPM) Network.
- Empire State Council of Agricultural Organizations.
- Federal Code 136r-1. Integrated Pest Management.

In 2018, the Penn State Department of Plant Science published an excellent factsheet for developing an effective turfgrass IPM program, authored by Professor Peter Landschoot. As referenced on its webpage, <https://plantscience.psu.edu/research/centers/turf/extension/factsheets/itpm-program>, it has the following to say:

Integrated pest management (IPM) is a pest management system that is gaining popularity and acceptance in the turfgrass industry. It incorporates all suitable control techniques to keep pest damage below an established threshold level. The use of IPM strategies should result in effective pest control with minimal impact on the environment and on people. It is important to understand that IPM is not pesticide-free turfgrass management. However, a successful IPM program should result in a more efficient use of pesticides, which usually means a reduction in pesticide use.

The goal of a turfgrass IPM program is to keep pest populations or damage at a tolerable level. This is called the pest response threshold level. It is determined by the number of pests or the amount of pest damage that can be sustained before an unacceptable reduction in turf quality occurs. Pest response threshold levels vary from site to site and are based on the use of the turf and the user's needs or expectations.

Safety and playability are the most important features of an athletic field. It is generally accepted that diseases and insects that damage turfgrass roots and crowns can result in reduced cushioning and poor footing, contributing to a greater chance of injury to athletes. Weeds should also be kept to a minimum because they create poor footing. Pests that cause superficial damage to foliage, such as red thread disease, can probably be assigned a relatively high threshold level since safety and playability would not be seriously compromised.

Chemical control of turfgrass pests with conventional synthetic pesticides is also an important part of an IPM program. It is essential to choose the proper pesticide for the target pest, to apply pesticides only when necessary, and to alternate pesticides so that pests are less likely to develop resistance to the chemical.

Penn State also identified five steps that turf managers should take when developing an IPM program:

1. Assessing Site Condition and Characteristics
2. Surveying Pests at the Site
3. Determining Pest Response Threshold Levels
4. Developing a Monitoring and Record-Keeping Program
5. The Decision-Making Process

The Town of Pittsford is committed to following these guidelines now and in the future when dealing with pests on Town land. Currently, we have identified several pests on our athletic fields, including white grubs, broadleaf weeds, grassy weeds (incl. crabgrass, annual bluegrass, and yellow nutsedge). We also are faced with weeds in our baseball infields during the off season, weeds in mulch beds, and weeds in formal

paths in our park areas. Again, these are not cosmetic considerations. Each of them degrades quality and safety of our fields. We have used cultural practices and non-organic pesticides to control these issues in the past.

Going forward, we will stress cultural IPM practices, such as aeration and overseeding, as the front line of defense, and will continue our practice of resorting to non-organic pesticides only when necessary. We have already and for several years re-directed our procedures to follow the following 5 steps offered by Dr. Jennifer Grant, director of Cornell's Integrated Pest Management program:

1. *Overseed, a lot!*
2. *Irrigate—at least your high priority fields*
3. *Keep field use at a reasonable level*
4. *Maintain good field fertility levels*
5. *Mow at as high a height as your grass and sport will allow*

Our biggest struggle on this list is field use—the current demand is excessive and shows no sign of slowing down. We can close fields for renovation, but instead of being able to rest for a full year, we are realistically only able to close them only for a season. We are hardly the alone in this struggle—I think most other Towns and School districts would agree.

Other Expert Advice

As directed by Town Supervisor Bill Smith, the Commissioner of Public Works, Paul Schenkel, and the Parks Department General Foreman, Jessica Neal, met with two authorities in the field of Integrated Pest Management in New York State, Walter Nelson and Lynn Braband. The goal of consulting them was to seek further information on strategies recommended by experts in our state.

Walt Nelson is the Horticultural Program Leader at the Cornell University Cooperative Extension of Monroe County, providing educational programs and consultation to the sports turf, lawnscape, ornamental horticulture, greenhouse, and Christmas tree business owners and managers. His Cornell Cooperative Extension program experience and leadership in agriculture and horticulture spans over 40 years. He also provides guidance for the community horticulture program in Monroe County. He received a BS in Horticulture from Penn State University, and his MBA from the Simon School of Business at the University of Rochester. We relied on Walt to advise us on the turf side of things.

Lynn Braband is employed by the New York State Integrated Pest Management program run by Cornell University. He has an M.S. in Wildlife Biology from Iowa State University, and a B.S. in Fisheries and Wildlife Biology also from Iowa State. He has taught wildlife classes at several local colleges including RIT and Nazareth, and has co-authored the award winning Best Practices for Nuisance Wildlife Control Operators: A Training Manual.

Given the amount of education and experience that these two expert advisors possess, we hold more stock in their informed recommendations than the fears of lay individuals who do not have their extensive knowledge, training or experience.

An Integrated Pest Management Program for Pittsford

Let's start with pests on Town lands. As Parks Foreman, I am responsible for the implementation of IPM techniques on these areas. Regarding pests found in our athletic fields, infields, and trails, perhaps it is easiest to break this down by location and specific pest.

Athletic fields (rectangles and baseball outfields)

- **Grubs**
 - Each field will be surveyed to confirm the presence of grubs. Because pre-emergent strategies are the most effective, we will look for the presence of grubs in the fall to establish probability of beetles laying eggs in the soil the following summer.
 - The accepted threshold level for white grubs is 5-10 per square foot of turf. Higher levels than this cause significant injury to turf, including weak or non-existent rooting. This in turn creates poor footing and high potential for injury to athletes.
 - Records will be kept of findings to help determine the areas of consistent infestation.
 - If the threshold is exceeded, preventative measures need to be taken. We have in the past applied non-organic pesticides containing imidacloprid as a pre-emergent. In 2018, the cost to treat all fields was \$1,132.
 - Fields are treated only when there are no games scheduled for 24 hours.
 - Before application, the fields are mowed to remove any flowering clover, dandelions, or other flowers to prevent injury to bees and/or other pollinators.
 - After application, we use our irrigation systems to “water the product in”, as directed on the label. This puts the chemical below the surface, where it can control grub populations.
 - Fields are marked with yellow warning placards for 24 hours following treatment in accordance with NYSDEC regulations.
 - We discussed with Walt Nelson the use of beneficial native nematodes as an alternative.
 - If using nematodes as a grub pre-emergent, there will be significantly higher costs for this product vs. imidacloprid. According to pricing found online at <https://www.arbico-organics.com/product/nemaseek-beneficial-nematodes-hb-heterorhabditis-bacteriophora/organic-lawn-care>, nematodes are \$270 per 500 million. Walt recommends using a billion nematodes per acre, totaling about \$11,880 for 22 acres. Obviously, this is for treating all of our fields and immediate surrounding areas.

- Nematodes must be applied during hours of darkness, as they are light sensitive. They must then be watered into the soil. This would require 1-2 staff members coming in between 9pm and 5am to apply and get the irrigation going.
 - Nematode success is hit and miss, according to experts, including Cornell's Frank Rossi in his "ShortCutt" newsletter, published in 2018, in which he stated that "field results are inconsistent, and failures are common." Dr. Jennifer Grant (Ph. D in etymology and director of the IPM program at Cornell) called nematodes "***a costly solution with inconsistent results.***" She also notes that "a high population of grubs that decimates turfgrass roots, thereby wreaking havoc on the footing for student athletes, can be a safety issue."
 - It is consistent with the concept of Integrated Pest Management to consider using nematodes on some of our fields and limit non-organic pesticide use to the fields at Great Embankment Park, which has the most serious grub infestations year after year and which would be destroyed in one season without effective treatment. Hopefully this would give us a better understanding of their efficacy.
- Broadleaf weeds: IPM strategies to reduce the occurrence of weeds are currently being taken and will continue in the future. We have an aerating schedule in accordance with Cornell's field management calendar, and also overseed 2-3 times per year. We fertilize twice per year on athletic fields, and water as needed to keep turf healthy.
 - Soil samples have been taken of several of our fields, and we also monitor our irrigation practices and look for signs of compaction. Our fertilizer can be tailored to compensate for high soil pH and any deficiencies.
 - Fields will be routinely monitored for weed infestations. Please note—we do not expect fields to be "weed free."
 - If weeds reach a threshold of over 10%, action should be considered. As noted before, weeds create poor footing issues on athletic fields, and can result in injury. Duty of care dictates that we not let this happen.
 - Records will be kept indicating the type of weeds found and their location.
 - Currently, if action needs to be taken, we will apply a broadleaf weed herbicide, such as Lesco Three-Way.
 - Historically, we have used a broadleaf treatment only once every 3-4 years.
 - The cost to treat all of our fields with Lesco Three-Way would be \$417.
 - Fields are only treated when no games are scheduled for 24 hours, and fields are marked with yellow warning placards for 24 hours in accordance with NYSDEC regulations.
 - If we give up non-organic pesticides, Walt Nelson of Cornell recommends overseeding at 2-3 lbs/1000 square feet, two times a month in August, September, and October, and once in the spring if possible. This is a much heavier overseeding than "normal," with the intention of an inundation of grass seed in order to out-compete weeds.

- If we follow this recommendation, the dollars add up quickly. This is about 4 fifty pound bags of seed per field at \$75/bag. This comes to \$300 per field, twice a month for 3 months and once in the spring. This comes to \$2100 per field, times 14 fields (9 soccer and 5 baseball/softball). Total is \$29,400 in grass seed alone. This is a tremendous chunk of the Parks Department's budget. It does not include the cost of additional equipment or additional staff (discussed below). We can increase our overseeding in the fall, but likely not to this extent, due to the increased amount of time and equipment needed. Hopefully the other cultural practices we employ, such as aeration and fertilization, will play a hand in weed suppression, which could make no further treatment necessary.
 - To combat grassy weeds such as annual bluegrass, Walt recommends an even more aggressive overseeding program. Seeding at 4-6 lbs/1000 sq. ft. in early August adds \$1800 to the above numbers.
 - Our current overseeder would have to be repaired or replaced, as it does not work well. We currently rely on borrowing the school's, but overseeding this often may put undue wear and tear on their equipment. We need our own. The cost will be \$13,000. This would move us closer to making Walt's overseeding goals attainable, if the money was made available for seed.
 - Additionally, we would like to purchase an aeravator attachment for our Ventrac tractor. This attachment is an aerator and overseeder in one, and would allow us to overseed more quickly in limiting weather circumstances when used with the overseeder on the tractor. The cost of this implement is \$8,000. The Town of Perinton has had great luck with this attachment.
- Grassy weeds (including crabgrass, annual bluegrass, and nutsedge): We currently employ the same IPM strategies to combat these weeds as well as broadleaf weeds.
 - Site assessment and monitoring will be ongoing. Crabgrass has been a major issue in 2018 especially at Great Embankment Park. Annual bluegrass has had a large presence at Thornell Farm Park. Nutsedge is minimal.
 - The same 10% threshold applies here, as well as with broadleaf weeds.
 - Records will be kept of appearances and amounts of grassy weeds to help determine the need for pre-emergent measures.
 - Walt Nelson suggests an even more aggressive overseeding program would be necessary if we give up using non-organic pesticides. This would require seeding at 4-6 pounds/1000 square feet in early August, followed up with 2-3 lb seedings as stated under 'broadleaf weeds.' If this is determined to not be possible, Tenacity is a low-toxicity non-organic herbicide that acts as a pre-emergent and post-emergent control. You may also apply at the time of overseeding without it preventing the desirable grass from germinating.

Baseball/softball skinned infields:

- Broadleaf and grassy weeds: This is an area where we can eliminate non-organic pesticide use completely. We have been able to rent a ball field renovator attachment for our Ventrac tractor that slices weeds at the root under the clay. They can then be raked up and disposed of. This is a fast and effective piece of equipment.
 - To ensure regular pesticide free maintenance, we should consider purchasing this attachment. MTE quoted it at \$2,283.75.

Formal path areas in parks:

- Broadleaf and grassy weeds:
 - We believe it may be feasible to hand pull these weeds, as they are typically not too thick on the pathways. Also, millings paths may be an area where an *organic* pesticide, such as vinegar, can be effective, given the way the sun heats them up and lends itself to wilt. Non-organic pesticides may still be necessary on paths that are completely overgrown (typically access-ways between neighborhoods). This is only done at resident request.

Mulch beds:

- Broadleaf and grassy weeds: These can be hand pulled in smaller beds or when enough labor is available to tackle large beds. Due to the size of our staff, use of RoundUp or a similar herbicide may be necessary on large beds.
- If we lose the non-organic pesticide option, we do not have the staff available to hand-pull weeds, especially in areas like King's Bend Park, where crabgrass routinely overtakes the mulch beds bordering the parking lot. I foresee complaints from the folks paying money to rent the lodges.

Neighborhood Park Districts:

- Park Districts are another area of concern. We have heard from residents in the Windscape district asking for non-organic herbicide applications to prevent weeds and crabgrass on entrance lawns. Other neighborhoods also insist upon this. Also, it is a common practice for our contractors to apply herbicides to weeds in ornamental beds in most of the districts. If we can no longer apply non-organic pesticides on lands forming neighborhood park districts, we would have to explain to residents paying extra taxes for the park district that they are not going to have weed-free entrance lawns, or we will have to hire additional staff to work full time at weeding these areas for the entire season. It is hard to put a number to this, but with 17 districts on the maintenance bid (and ornamental beds in parks and around Town buildings), that comes out to likely 2 extra seasonal employees, costing \$27,000 in wages. At some point we have to consider that this could bring the parks spring-fall staff up to 17 persons, and we have a relatively small kitchen/eating area/locker room and one bathroom. We will be bursting at the seams in our facility. Additionally, the Parks Dept. fleet currently consists of only 6 trucks. We are always in a vehicle crunch, and I often

am stuck driving my own vehicle. Another truck (or two) would be imperative at these staffing levels. A Ford F250 pickup would run about \$32,000.

Structures:

When deemed necessary, the Town has hired Exodus Exterminating to apply pesticides to our structures in the past, mainly to control stinging and nuisance insects. Lynn Braband of Cornell University's and the New York State Integrated Pest Management program provided many excellent suggestions for buttoning up our buildings to increase effectiveness of pest exclusion (aka keeping them outside where they belong). He examined the lodges at King's Bend Park, two park restrooms, and the Mile Post school house. His suggestions include removing excess vegetation and mulch from the base of buildings, caulking up holes, and securing interior escutcheon plates. These are things the Town can do to minimize pesticide use in our buildings.

Parks Department Integrated Pest Management proposal:

If we are looking to minimize pesticide use by the Town, as well as remain fiscally responsible, we can follow the true spirit of IPM and use a variety of options. I propose the following:

- Limit chemical grub control to Great Embankment Park, where it is a severe issue.
- Crabgrass can be treated as needed, and it is easy to see and keep track of.
- We will continue to aerate, irrigate, and overseed as much as possible in order to out-compete broadleaf weeds and grassy weeds.
 - This should go a long way to minimizing any broadleaf weed applications or eliminate the need for them altogether.
- We can confine the use of RoundUp to mulch beds, where nobody should be exposed to it.

Conclusion:

This IPM plan has been months in the making. We wanted to do thorough research into best practices, and to compare what our strategies are with other municipalities. As part of this project, the Town undertook a survey of all other Towns in Monroe County. A half dozen towns in Monroe County (including Pittsford) report using non-organic pesticides on their athletic fields. These six towns experience similar levels of field usage and demand for fields.

When we compare Pittsford's non-organic pesticide use with the other Towns that also report using them, it is obvious that our use is certainly less than theirs. There are towns which experience similar demands and expectations of their fields, who apply broadleaf weed controls annually. By comparison, Pittsford applies it about once every three years. Another neighboring Town treats approximately 1700 acres annually with broadleaf weed control, compared to our approximately 21 acres of treated area being treated approximately once every three years.

Again, Pittsford's usage of non-organic pesticides has been misrepresented by people who did not bother to look into the facts or in one case chose to deliberately misrepresent the facts, a misrepresentation that was then repeated by a resident at a Town Board meeting.

FACT: In the three-year interval between the Town's broadleaf weed treatments, it only takes two homes with half acre lots and a lawn service to use the same amount of broadleaf herbicide that we use on all athletic fields during that time period. There are over 9,500 homes in Pittsford.

FACT: Each year, for all Town land under its care, the Town and its contractors together use no more than approximately a single one-gallon container of Roundup.

FACT: The Town uses no Roundup on any of its playing fields.

We do not need to speculate on the consequences of ending the use of all non-organic pesticides on Town athletic fields and other properties. We can look to our neighbors who have already established bans. Many Parks Foremen of these Towns expressed to us, as we consulted with them for this report, their frustration at the difficulty in keeping fields healthy, thick and safe for use, when deprived of this necessary tool. In one town, the Pee Wee Football organization left weed-infested Town fields for another site with synthetic turf. The town lost out on a longstanding relationship with a community group as well as revenue from the team. Another town is looking into getting a licensed applicator after failed attempts at organic weed control with vinegar and saline.

In another neighboring town, the Parks Foreman has several times caught the local baseball organization taking matters into their own hands and applying pesticides in direct opposition to the Town's ban. Also in that same town, the Foreman has petitioned the Town Supervisor periodically for permission to spray stinging insects or giant hogweed, both of which pose significant health risks and make pesticides necessary.

Officials from the Pittsford School District have acknowledged that their pest management strategies are not keeping up with the use demands on their fields. It is a difficult position to be in, when expectations from community groups and other field users sets the bar very high for maintenance standards. Like the Towns in the County who report not using non-organic pesticides, Pittsford uses the same IPM strategies of seeding, aerating, fertilizing, watering, and top dressing. The difference is that we have an additional tool we can turn to when nothing else works.

While eliminating non-organic pesticides altogether may seem like the desirable result of an IPM plan, sometimes it is not entirely feasible or even advisable. The State law that anti-pesticide advocates often refer to as "banning" non-organic pesticides on school grounds actually permits the use of chemical pesticides when necessary. It allows for pesticides to be dispensed from aerosol sprayers (18 ounces or less) to protect from stinging or biting insects. Non-organic pesticides used inside of schools or day care centers, or to protect a structure, are not banned. Also, schools may petition

their school board for permission for an “emergency application” of pesticides, though it is vague as to what might be considered an emergency. These caveats show that the authors of this law understood that sometimes it is important to keep all options available if absolutely necessary.

It is also worth noting that the **organic** products often touted by the anti-synthetic pesticide folks can be just as dangerous, or even more so, than non-organic pesticides. Acetic acid, found in regular table vinegar at 5%, is a common active ingredient in organic pesticides at higher concentrations. One product, called Vinagreen, carries a “Danger” signal word (compared to the “Caution” on RoundUp). The toxicity warnings on this product are “Corrosive – causes irreversible eye damage; harmful if absorbed through skin; harmful if swallowed; do not get in eyes, on skin, or on clothing; toxic to birds exposed to spray drift; toxic to fish and aquatic invertebrates; do not apply directly to water.” This product is much more dangerous than glyphosate, the active ingredient in RoundUp, and carries a host of side effects that are much more severe, yet people still think it is safe simply because it is “organic.” As an applicator, it is obvious to me that this product is more dangerous to children, pets, and adults than the synthetic alternatives. Uranium and radium are also natural, organic elements, but obviously they are not safe.

Organic fertilizers would also give folks pause if they looked into them more closely. Milorganite is an organic fertilizer made of microbes that have digested human waste, and is known to have an off-putting odor. Not many parents would be too happy about sending their children off to play soccer on this product. Other products are made from pulverized fish or animal feces, and also give off a noxious odor. The Town’s fertilizer applications are in line with the School District’s, and to switch to one of these products would certainly negatively impact use of our fields.

Integrated pest management involves having a toolbox full of options, and the fully-trained and licensed members of Town staff are responsible for choosing the tool that will be most effective and the least obtrusive to the public and the environment. Factors that play into the decision on what to use include efficacy, cost, size of area, availability of labor and equipment, safety in using fields, public expectations and public safety. It is our intent to do everything we can to maintain safe, structurally sound fields, and keep non-organic pesticide use to a bare minimum.