

Child's Play: Managing School Athletic Fields Using Integrated Pest Management

by Bridget Meeds

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The managers of school athletic fields in the lower Hudson River Valley have a lot of pressure. Taxpayers with kids in the schools often want the fields to look pro-sports good for school teams. They also want community sports groups to have as much weekend use of the fields as possible. Funds for constructing and maintaining the fields are never enough. And in 2001, legal pressures were added, in the form of the New York State Neighbor Notification law and a Westchester County ban on using pesticides in county parks and nature preserves. It's one of the most stringent laws regulating pesticide use in the country. Parent advocates are rallying against the use of pesticides on school grounds and in buildings.

The New York State Integrated Pest Management (NYS IPM) program, based at Cornell University in Ithaca, NY, noticed this particular pot boiling and has stepped in to help lower the heat. IPM techniques for turf focus on controlling weeds and pests with the least-toxic methods available. Realizing that school districts needed help, NYS IPM organized a two-year learning project, funded by the Northeast IPM Center. Between 2004 and 2006, a team formed to help the Scarsdale Public Schools and the Monroe-Woodbury Central School District increase their use of IPM techniques while reducing their use of pesticides. They used a learning community approach, in which school district employees worked with extension workers and peer mentors to assist each other in developing programs.

Scarsdale, which serves more than 4,500 students with 950 employees, has 10 fields totaling 33 acres. Monroe-Woodbury, which serves more than 7,500 students with 1,400 employees, has 35 fields totaling 250 acres.

During this project, the goal of each school district was to become eligible for the IPM Institute's Star Certification Award, a national award indicating achievement of a high level of school IPM and practices. (More information about the IPM Institute can be found at <http://www.ipminstitute.org/>). Both school districts are on track for being recommended for this distinction.

Use Fewer and Less Toxic Chemicals

Children, because they are small and spend a lot of time close to the ground, are more vulnerable to the detrimental effects of pesticides than adults. And school staff members at all stages of life, from women of child-bearing age to older workers coping with respiratory diseases, will benefit from reduced exposure to chemical agents.

At least 30 percent of New York State public school districts are applying pesticides in school buildings and on grounds on a regular, prescheduled basis, a practice IPM tries to discourage. However, schools do need to manage weeds and pests on playing fields and school grounds to keep the environment safe. In particular, weeds in playing fields lead to unsafe footing and preventable accidents.

“The first step in initiating an IPM program is to eliminate scheduled maintenance applications of pesticides,” says Jim Lancaster, Assistant Director of Plant, Operations, and Maintenance for the Scarsdale Public Schools. “Tolerance and action thresholds should be established, and pesticide applications made only when pest populations reach action threshold levels. Spot treatments focusing on problem areas further reduce the amount of pesticide being applied.”

While Gina Gatto, grounds department supervisor for the Monroe-Woodbury Central School District, still uses herbicides for broad-leafed weeds once every few years, she finds that IPM techniques allow her to stretch the time period in between. “We’ve certainly cut down on our usage of everything,” she says. “It was an effort in the beginning to do the IPM techniques but now it’s a routine.”

Build It Right

IPM begins at the design stage. “Good field design and construction is essential,” says Lancaster. “Surface and or subsurface drainage needs to be addressed. The root zone soil mixture should have good soil texture and structure which will lead to higher water infiltration and percolation rates, and will be more resistant to compaction.” Combined with techniques such as over-seeding and aerating, a well-built field reduces the risk of clover and crabgrass taking hold.

Gatto agrees. Recently, when her district was building a new field, they were offered free soil from a chicken farm. “I knew that using chicken farm manure could be a big challenge because it’s so acidic,” she explains,

“so I sent out samples. It wasn’t just acidic, it was down-right poisonous. I was able to veto something for a change!”

Give the Grass a Break

One of the biggest problems encountered by school athletic field managers is over-use.

“We have non-stop weekend use of the fields by community groups,” says Gatto. “They’re on them 7am to 7pm, even if the fields are wet. We have some control over when our school teams use them, but none over the community groups.”

“Community groups using the fields need to understand that excessive play or playing on a wet fields not only damage the turf surface but compacts the soil,” says Lancaster. “Compacted soils stress the turf and create more favorable conditions for weeds, insect pests, and diseases, which in turn increase the need for pesticides.”

People are used to limits and know, for instance, that you can’t ride a horse continuously without giving it a break. But people forget that soil (which is a mixture of living organisms and non-living material) and grass need time to rejuvenate.

Test and Monitor for Pests

An important aspect of IPM is to monitor your environment for pests in order to react to their presence, rather than treating for them on a preordained schedule. For turf management, testing the composition of your soil can tell you a lot.

“The soil samples are probably the biggest thing I’ve changed,” says Gatto. “I’m now doing them twice a year, in the spring and the fall, for all the fields. Then I can treat them specifically for the nutrient level that they need.”

Aerate, Overseed, and Fertilize More Often

Jim Lancaster has a B.S. degree in Agriculture from the University of Arizona, so IPM comes naturally to him. “We try to keep the turf as healthy as possible so it will out-compete weeds and be more resistant to insects and diseases,” he says. “Through soil sampling we monitor PH and soil fertility. We aerate, over seed, and fertilize the athletic fields three times a year. Our fields are irrigated so we try to

optimize soil moisture levels. In the spring and fall when cool season grasses are actively growing we mow more frequently to avoid scalping the turf.”

Frequent aeration also builds healthy turf. “We’re always aerating whenever we can,” says Gatto. “Field users are more accepting of seeing plugs taken out of the ground and drag mat marks, because I explain to them that how necessary it is because we have such a compaction problem.”

Studies have shown that weekly overseeding in damaged areas results in better turf coverage, fewer weeds, and provides safer footing. Moving field lines and goal mouths to reduce focused impact is another simple way to avoid compaction.

Naturalize Areas

Instead of spraying weeds on the fence lines, Gatto has naturalized those areas. “I’m not concerned much with keeping everything trimmed down to nothing,” she explains.

Other school districts have found success using a hot water machine to kill weeds without chemicals, particularly the weeds that grow in the cracks in concrete sidewalks. Sealing the cracks also helps prevent these weeds. It’s particularly important because pesticides aren’t absorbed by concrete and can easily run off and leach into ground water.

IPM gives great results

Although IPM techniques might initially cost more in terms of time and money, the people using them in this project feel that in the long-term, they are more beneficial. Almost everyone working in the public school system is aware that reducing pesticide use helps all members of the community.

“By participating in this project,” says Gatto, “I’ve learned that there are techniques that I wasn’t aware of that we may be able to utilize for the future, a lot of little things that you do can make a world of difference. I got really good ideas from everybody in the group, a lot of methods I never tried before, and I’m glad I tried them.”