**University of Illinois Department of Intercollegiate Athletics**

**Facilities - Grounds**

**Integrated Pest Management (IPM) Program**

**Overview**

Unify, Develop, Inspire, Achieve.  These are not just words in the Department of Intercollegiate Athletics (DIA) mission statement, but active initiatives to ensure we are living the mission. The University of Illinois has long and storied athletics history rich in tradition. From Red Grange and Dick Butkus to our current student athletes, we strive to provide our players, coaches, and teams with safe athletic playing surfaces while also being environmentally mindful of the land the University of Illinois athletic facilities reside on.  The DIA recognizes the importance of respecting the land, water, air and inhabitants of the athletic facilities grounds and has a fundamental responsibility to facilitate safe and environmentally friendly sports fields for our athletes and visiting teams. Here on the athletics campus of the University of Illinois, we apply an effective and environmentally sensitive approach to pest management that relies on a combination of common-sense practices, earth friendly inputs, and a science-based approach to managing the ecosystem. The primary objective of an IPM program is to reduce the total pesticide load on the grounds by using a combination of tactics to control or manage pests. Our approach considers all strategies to reduce pest damage to acceptable levels in the most economical means, while simultaneously accounting for impacts on humans, property, and the environment. The goal of our IPM program is to keep pest populations or damage at a tolerable level so there is no reduction in quality or safety of the athletic fields and surrounding grounds.

**Our Grounds Mission**

Develop environmentally sustainable, socially acceptable, and economically viable pest management program for our athletic fields and grounds while providing a safe, aesthetically pleasing surfaces for our student athletes to compete on. Reducing financial burden and minimizing the ecological footprint are cornerstones of our IPM program.

**Our Process**

Integrated Pest Management is a multifaceted approach involving a series of management evaluations, decision making, and controls. These approaches are discussed below.

* **Setting Thresholds**

A single pest sighting or issue doesn’t always require action. Setting an action threshold allows for a certain level of tolerance before any control is taken. This level of tolerance, or threshold, is critical to guiding pest control decisions. Our athletic fields are considered high level surfaces which have thresholds that reflect that level of maintenance.

* **Scouting and Identification**

We monitor our grounds surfaces daily often while performing other tasks such as mowing or filling divots. This close attention allows us to determine levels of stress brought on by insects, disease, heat, weeds, and other environmental factors. Monitoring the grounds is an important step in the process of determining if action is needed. Not all insects, weeds, and living organisms require control, many in fact can be beneficial. Being able to scout and properly identify everything on our grounds lays the groundwork for future decisions. Records of pest issues are kept and updated annually to provide historical information as we move forward.

* **Prevention**

Regarding turfgrass athletic fields, the best line of defense against pests is to grow a healthy stand of grass that can withstand the stresses of insects, weed pressure, weather factors, and diseases. Monitoring of the nutrient levels in our soils on a routine basis provides critical information to grow and sustain a dense, healthy stand of turfgrass. Soil and plant tissue testing gives us the feedback we need to implement an environmentally responsible action plan. Records and results of our soil and tissue testing are kept for future decision making if the control we implemented needs altered. We want to create conditions that make it difficult for pests to thrive.

Multispectral Drones allow us to see the invisible. By routine flights over our athletic fields we are able to identify plant health, and areas of stress in advance. Chlorophyl levels, moisture management, drought/heat stress, and disease & insect pressure are all monitored with a multispectral camera connected to a small drone. This technology also allows for specific site treatment instead of blanket calendar based applications.

* **Control**

Once we have gone through the previous steps of setting thresholds, scouting, identification, and prevention, we then look at control options that best suit each situation. By avoiding blanket applications, we can limit the inputs into the soils that can be a risk to the ground and organisms. Through proper evaluation we can proceed with less risk. More environmentally friendly options such as investing in the health of the soil via organic fertilizers, weeding by hand, mechanical and cultural practices, as well as target spraying are performed first before the last resort of large area treatment with pesticides.

**Fundamentals of our IPM program**

* **Education & Training of Staff**

All employees who apply pesticides have completed the required training and education by the State of Illinois in order to become a licensed applicator/operator of pesticides. Through proper education, our staff has a better understanding of the environmental impacts of pesticide usage and abuse. Membership in the Sports Field Managers Association is provided to interested employees to offer more education opportunities to staff. 1-2 educational workshops are offered to employees throughout the year.

* **Soil and Plant Tissue Testing**

Annual soil and plant tissue testing is performed on all our athletic fields. This information helps identify imbalances in the soil, which can lead to well informed decisions on field maintenance, reduce environmental impact, and superior playing surfaces. This customized information helps us tailor our IPM program specifically to each fields needs. Beneficial impacts of performing soil and plant tissue testing can include avoiding of over-applying fertilizers and soil amendments that can pollute the soil. Plant tissue testing enables us to detect nutrient deficiencies before visual symptoms appear. By optimizing the health of our turfgrasses, we can improve density, strength, and resistance to pests.

* **Inputs**

We have adopted a bottom up strategy when it comes to our fertility programs on the athletic fields & grounds. By managing the root ecosystem, we can provide all of our turfgrass, plants, and trees with a healthier environment to grow in. With healthier plants, there are less stresses needing control action.

All our inputs (fertilizers, pesticides, amendments) are first researched and determined to be necessary before any product is selected and applied. Environmental and human safety are the highest priority in all our inputs to the soil and plant. By unlocking the nutrients already available in the soil, we can avoid over saturating the root system. Less inputs equals healthier environment.

-Avoiding usage of “Neonics”, a class of insecticide that can accumulate in the soil and can cause harm to pollinators, birds, and mammals.

-No Restricted Use pesticides are used on our properties.

-Limiting liquid spray applications (fertilizer, pesticides) prevents drift into sensitive areas of campus. These limited spray applications only occur if weather conditions allow for effective application to the target area.

-Management of the organic layers in the soil. Through various methods of aeration, topdressing sand, and the usage of organic fertilizers when applicable to serve as food sources for soil organisms that manage the organics of the soil profile. Part of our “Bottom Up” IPM strategy.

-We do not collect clippings from mowing. Routine mowing provides smaller clippings that can be recycled back into the soil providing nutrients back to the plant.

Examples of Our Inputs**:**

-Sea Kelp helps improve availability of nutrients in the soil, allows better water management through absorption abilities, and encourages beneficial microorganisms in the soil. Encourages a deep root system allowing for better heat management. Kelp is nutrient rich, natural option that can be used throughout the entire season to improve overall health and resilience.

-Carbon rich organic based fertilizers that feed the soil allow for long lasting feeding and balance to the rootzone. By using compost based fertilizer granules, we create a sustainable food source for biological activity in the soil which then provides for the plant by unlocking nutrients that it needs to thrive. A strategy that creates a rootzone ecosystem of organics for healthy feeding to the plant roots.

* **Common Sense Approach**

-Washing equipment. Limiting the spread of turfgrass diseases, and weeds that can get picked up on mowers and other equipment we are lessening the chances of it spreading.

-Regular, routine mowing at a height that is conducive to healthy, dense grass formation. Only cutting 1/3 of the leaf blade off per mowing allows for a stronger plant to withstand environmental stresses.

-Irrigating deeply and infrequently to promote healthy plants. All our athletic fields run on underground irrigation with individual controllers with remote capabilities via smartphone, tablet, and computer. This allows better water management of our fields limiting negligence and water abuse as well as improved plant health. Water management is key in supporting healthy turfgrass.

-Irrigation rain sensors. These sensors shut down preprogrammed irrigation run times if certain amounts of rainfall occur for a period of time.

-Avoiding unnecessary chemical applications.

-Mowing with sharp blades contributes to healthy turfgrass plants. A clean-cut limit the stress put on the plant compared to a dull blade that can rip, tear, and destroy the tip of the leaf blade. Damage caused by dull blades encourages disease infiltration and stress which can lead to pesticide usage.

-Usage of wood chip mulch in our landscape beds to discourage weed growth and manages moisture around our plants.

-Proper recording of all pesticide, fertilizer, and activity on all athletic fields.

-Responsible storage and labeling of all products stored on site.

-Signage is posted when pesticides are applied per local, state regulations.