



WESTERN CONNECTICUT STATE UNIVERSITY

ORNAMENTAL SHRUB AND TURF PEST MANAGEMENT PLAN

PROCEDURE **E-111**

Issued 8/20/02

Revised 3/1/07, 11/14/18

Please direct any questions or comments about the applicability of this document to Pano Koukopoulos, Director of Environmental & Facilities Services

The Department of Environmental Protection has developed this model plan to assist with the development of comprehensive integrated pest management programs at state departments, agencies, and institutions as outlined in Connecticut General Statutes, Section 22a-661. Integrated Pest Management (IPM) is defined as the use of all available pest control techniques, including judicious use of pesticides, when warranted, to maintain a pest population at or below an acceptable level, while decreasing the unnecessary use of pesticides.

The primary goal of IPM is to reduce the amounts of pesticides applied by using alternative methods of pest control which may include structural maintenance, sanitation, and mechanical or biological control. These methods will help to eliminate conditions that are favorable to pest infestation, making their survival more difficult.

Section 22a-661 of the Connecticut General Statutes states:

- a. Each state department, agency, or institution shall use integrated pest management at facilities under its control if the Commissioner of Environmental Protection has provided model pest control management plans pertinent to such facilities.
- b. Each state agency which enters into a contract for services for pest control and pesticide application may revise and maintain its bidding procedures to require contractors to supply integrated pest management services.
- c. The Commissioner of Environmental Protection shall annually review a sampling of state department, agency, or institution pest control management plans required by regulations adopted under section (e) of this section and may review any application of pesticides to determine whether a state department agency or institution acted in accordance with subsection (a) of this section.
- d. The Commissioner of Environmental Protection may provide model pest control management plans which incorporate integrated pest management for each appropriate category of commercial pesticide certification which is offers. The Commissioner shall, within available resources, notify municipalities, school boards, and other political subdivisions of the state of the availability of the model plans for their use. The Commissioner of Environmental Protection shall consult with any state agency head in the development of any such plan for properties in the custody or control of such agency head.
- e. The Commissioner of Environmental Protection, in consultation with the Commissioner of Public Health, shall adopt regulations in accordance with the provisions of chapter 54 establishing requirements for the application of pesticides by any state department, agency, or institution. Such regulation shall include provisions for integrated pest management methods to reduce the amount of pesticides used. Notwithstanding the provisions of this section and any regulations adopted under this section, a pesticide may be applied if the Commissioner of Public Health determines there is a public health emergency or the Commissioner of Environmental Protection determines that such application is necessary for control of mosquitoes.
- f. The Commissioner of Environmental Protection shall develop and implement a program to inform the public of the principles of integrated pest management and to encourage its application in private properties.

Western Connecticut State University will be inspected by \_\_\_\_\_ for the purpose of identifying areas of pest infestation (weed, insect, and disease) on the grounds of the facility, making recommendations for corrective measures that should be implemented, and

Shortcut to LM.lnk developing a comprehensive integrated pest management (IPM) plan. The IPM plan will utilize all methods of pest control which may include modifying cultural practices, monitoring for pest populations, mechanical and biological control, and the judicious use of pesticides. If possible, pesticides will not be applied on a routine basis, however, they may be used as a tool to maintain pest populations at or below an acceptable level while maintaining plant health and aesthetic quality. The selection of pesticides that may be used will be based on a predetermined hierarchy that will utilize least toxic products as first choice. Whenever practicable, biological controls such as predatory insects, beneficial nematodes, or microbial pesticides will be used. Proper implementation of this program will reduce the volume, toxicity, and frequency of application of pesticides and other chemicals, thereby reducing negative environmental impact and the risk of potential exposure of building occupants and visitors to the grounds who may be sensitive to their use.

The \_\_\_\_\_ (name of landscape company) and WCSU's Maintenance Grounds Supervisor shall meet to discuss areas that have been problematic or sensitive, e.g., wet, shady and/or high traffic areas or areas where there is a history of high pest pressure. Areas that are sensitive to pesticide use will also be discussed, e.g., daycare areas, elderly residence, work area of sensitive employees, etc.

Once these areas have been identified, the \_\_\_\_\_ (company) and WCSU's representative will discuss various pest control options and determine the speed of control necessary, as well as threshold/action levels based on pest population, species, plant health, and aesthetic considerations.

\_\_\_\_\_ (Name of Company) will submit recommendations for corrective measures in writing to WCSU's representative, specifying action that should be taken by the facility, e.g., correct drainage/runoff problems, prior to the application of any pesticides. He is responsible for scheduling and coordinating maintenance activities at the facility and will act on the recommendations as soon as possible. He will report in writing which recommendations will not be followed and state the reasons if no action is to be taken as required by CSR Sec.22a-661-1(c). Otherwise, all IPM methods that are recommended will be followed.

WCSU's Representative will monitor/scout the grounds of the facility at least once monthly April through September. Additional monitoring may be required during peak periods (June-August) to monitor for weeds and diseases. Off-season (October-March) monitoring may also be scheduled on an as needed basis.

All pest problem areas and written recommendations for structural, sanitary, or procedural modifications will be recorded on "Ornamental and Turf Pesticide Application Record/Monitoring Report" forms or substantially similar substitute. These forms will be kept in a file that will be maintained in Facilities Grounds Office. Additional records that will be maintained in this file will include a copy of this plan, copies of all soil sample analysis reports

(if any), a diagram indicating the placement of all pest monitoring devices and copies of the pesticide product label information provided at the time of contract by the LCO. The Maintenance Grounds Supervisor will act as a liaison between the landscaping/pest control company and department supervisor(s) and will be responsible for notifying the appropriate personnel of corrective actions that are needed, e.g., correct drainage and/or runoff problems.

The contract company's certified supervisor shall conduct a follow up inspection to confirm the presence of the pest(s) and verify damage level estimates prior to any widespread application of pesticide if the landscape/pest control technician has identified weed, insect, and/or disease information.

Pest sighting report logs provided by \_\_\_\_\_ (name of landscape company) will be reviewed by the landscape/pest control technician at the beginning of each service call. The log will be maintained in Grounds Office and will serve as a tool to facilitate communication between all personnel and the landscape/pest control technician. All pest sightings should be reported in the logs and should include specific information as to the location and type of pest, if known. Whenever possible, a sample will be provided to the landscape/pest control technician for identification purposes.

Service call/monitoring inspections include all lawn areas at both the Midtown and WS campuses.

#### Turf Plan

Best management practices will be implemented at all times in an effort to maintain turf health and appearance. Turf will be mowed to a 2"-3" height or as high as possible on a weekly/biweekly basis or as needed. Mowing should be done when the grass is dry to avoid spread of turf diseases. Mower blades should be maintained with sharp cutting edges to avoid excessive wounding and stress of the turf-grass.

Upon implementation of the IPM program and prior to the application of any fertilizer or pesticides, soil samples will be collected by the landscape/pest control technician and analyzed. Soil samples will also be collected and analyzed annually to assess soil fertility and pH. Annual sampling will be performed in late fall or early spring after the frost has left the ground. Amendments will be made to the soil as recommended by the analysis reports. Proper soil pH and fertility will help to prevent many turf-grass diseases and promote plant vigor, thereby reducing the occurrence of insect and weed invasion.

When practicable, organic fertilizers may be used, otherwise, fertilizer with 50% slow release nitrogen shall be utilized. Fertilizer should be applied no later than October 15<sup>th</sup>. Late fall applications of lime will be avoided, if possible, to reduce the risk of snow mold. Over-fertilization may result in an increase of some plant diseases, more frequent mowing, increased thatch layer, and risk of leachate into groundwater in some circumstances.

Proper management of grass clippings is an important part of maintaining the lawn. Grass clippings will remain on the lawn and allowed to degrade, returning 50% of available nitrogen

back to the lawn. This will help to increase the soil organic matter and promote beneficial earthworm activity.

Watering may be done once a week to a depth of 6” between the hours of 5:00am and 8:00am. The second best time to water is late evening/early morning after the dew has fallen. Watering in the evening is not recommended on hot, humid nights because it may increase the occurrence of diseases. Necrotic ring spot and summer patch may be prevented by keeping the upper soil layers moist.

A thatch layer up to ½ - ¾ inches thick is beneficial. An excessive layer is undesirable because it will block moisture, fertilizers, and/or pesticides from reaching the root zone of the turf. Over-development of thatch can be prevented by reducing fertilizer applications and maintaining proper soil pH. If de-thatching is necessary, it will be done mechanically during the spring or late summer (September) when grasses are actively growing and can recover fast.

Fertilizer applications should be performed when grasses are actively growing, usually late May/early June and late August/early September. Fertilizer applications will not exceed 2 – 2 ½ pounds of nitrogen per 1000 square feet per year unless soil sample analysis reports indicate a necessity to further amend the soil.

### **Turf Insects**

Visual inspection of the turf areas will be done monthly, April through September, by the certified supervisor to monitor for evidence of the chinch bug, sod webworm, billbug and/or other destructive turf pests. Additional sampling may be performed to confirm the presence of these pests and/or white grubs.

Applications of insecticide to turf areas will be limited in an effort to preserve populations of beneficial insects and nematodes. Pesticide application will be considered if monitoring indicates the following pest populations or up to 20% damage can be anticipated.

1. white grubs, 10 Larvae/square feet
2. chinch bug, 30-50 nymphs and adults/square foot or when damage is evident
3. sod webworms/cutworms, areas will be treated only when damage is evident
4. hyperodes weevil (annual bluegrass weevil), tolerance
5. black turf grass ataenius, tolerance
6. ticks, tolerance

Certain, pre approved, contact insecticides can be applied to control Japanese beetles, European chafers, masked chafers, oriental beetles, and/or Asiatic garden beetles or other beetle species during late August/early September when larvae are present.

A pre-approved pesticide will be applied to control chinch bugs, billbugs, and sod webworms when damage is evident. (Damage periods normally occur during hot, dry weather – late June/July/early August.)

### **Weed Control**

A lawn that is properly managed should produce dense, thick turf grass which ideally will help to prevent invasive weed species from getting established. Some weed growth should be anticipated and tolerated to some degree. Widespread applications of broadleaf herbicides will not be performed unless weed species have invaded greater than **25%** of the entire turf area. Spot applications will be performed to small areas on an as needed basis.

a complete re-evaluation of any area requiring a broad application of pesticide will be performed by WCSU to assess and re-implement proper cultural practices to maintain turf density and vigor.

### **Disease Management**

Pesticide applications for control of turf diseases will be performed only if evidence of disease has been found and significant areas (10-15% of the total turf area) of permanent damage can be anticipated and all proper cultural practices have been employed. Contractor's certified supervisor will discuss pest control options with WCSU's representative to determine the appropriate course of action.

### **Flower Beds and Formal Landscaping**

Best management practices will also be followed for the care and management of all flowerbeds and ornamental plantings. Insect and disease resistant plant varieties will be selected for planting in any flowerbeds and/or formal landscaping areas whenever possible. The landscape/pest control technician will visually inspect plants for insect and/or disease infestation prior to planting. Plants will be planted at the proper depth to avoid plant stress. Mulch will be placed in all garden areas and around individual trees and shrubs. Mulch materials will be placed at sufficient depth to reduce weed growth and help to retain moisture. Mulch placement will also be placed to provide a buffer area to eliminate mechanical damage which may result from use of string trimmers or mechanical edgers.

Foundation plantings and vines will be trimmed at least 12" away from the building to eliminate rodent harborage and access to the building and allow for monitoring of rodent activity.

The landscape/pest control technician will remove and dispose of dead and dying vegetation from plants and plant beds (monthly) to prevent spread of disease. Leaves will also be raked away to prevent accumulation and development of rodent harborage. Branches and plant material will be properly disposed of at the end of each day that work has been performed.

### **Ornamental Insect Control**

Visual inspections will be conducted during routine maintenance activities and pest monitoring traps will be utilized, where appropriate, to indicate the presence of harmful pests. Wherever pest activity is found and if practicable, infested plant(s) or branches will be washed off using a strong stream of water or removed and properly disposed of.

In an effort to preserve beneficial and predatory insects, pesticides will be applied only on an as needed basis. Application of pesticide may be considered if it is anticipated that pest activity will result in unacceptable levels of damage to ornamental plants. For this facility, up to 15% damage or defoliation to ornamental plants will be considered acceptable.

Pesticide application will be limited to only the infested area(s). General applications of pesticides will not be done. Bio-insecticides, insecticidal soaps, dormant oil, or summer oil will be utilized if possible. The timing of each application will be based first on whether the pest is present and causing damage, the pest life cycle, and at what stage the pest is most vulnerable to pesticides.

Preventive pesticide applications may be performed only to areas where the previous year's monitoring has shown evidence of insect pests which may over-winter on ornamental plants.

Weed Control

Preen may be applied as a pre-emergent weed control in annual flower beds and ornamental shrub gardens. Pre-emergent weed control may also be used in perennial flower gardens where pesticide labeling allows

**Disease Management**

Pesticide applications for control of ornamental diseases will be performed if evidence of disease has been found and significant areas (15% or greater) of permanent damage can be anticipated and all proper cultural practices have been employed.

Preventive pesticide applications may only be performed when the previous year's monitoring has indicated a likelihood of disease or if certain plant species, prone to disease problems, are present. Preventive applications should be made only to specific problem areas.

Grounds Supervisor and the contract company will discuss pest control strategies to determine the appropriate course of action.

\*\*\*Pesticide applications will be performed after regular business hours, on the weekend, or when the campus is less utilized.\*\*\*

An appraisal of this IPM program will be conducted biannually by the ground supervisor and the Director of Environmental and Facilities Services. A determination will be made as to the effectiveness of the program and revisions will be made to correct potential problems.

**IPM Monitoring Form**

**Ornamental Checklist**

| Site/<br>Area | Host Plant | Size | Stage | Pest | Stage | Damage<br>Site | Damage<br>Level | Natural<br>Enemies | Control<br>Action |
|---------------|------------|------|-------|------|-------|----------------|-----------------|--------------------|-------------------|
|               |            |      |       |      |       |                |                 |                    |                   |
|               |            |      |       |      |       |                |                 |                    |                   |
|               |            |      |       |      |       |                |                 |                    |                   |
|               |            |      |       |      |       |                |                 |                    |                   |
|               |            |      |       |      |       |                |                 |                    |                   |

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|---------------|------------|------|-------|------|-------|----------------|-----------------|--------------------|-------------------|
|               |            |      |       |      |       |                |                 |                    |                   |
|               |            |      |       |      |       |                |                 |                    |                   |
|               |            |      |       |      |       |                |                 |                    |                   |
|               |            |      |       |      |       |                |                 |                    |                   |

**Key to Codes:**

**Host Plant Size: Host Plant Stage: Pest Stage: Damage Site: Damage Level:**

**Natural Enemies: Action:**

<1ft. Seedling=1 seedling=2 egg=1 bark=1 none(0%)=0

rare=1 no action=1

1-3 ft. tall=2 budding=3 early instar=2 bud =2 trace (<5%)=1 few=2

mechanical=2

3-6 ft. Tall=3 flowering=4 late instar=3 flower=3 light (5-10%)=2

common=3 cultural=3

6-8 ft. Tall=4 fruiting=8 pupa=4 fruit=4 moderate (10-30%)=3

abundant=4 biological=4

>8 ft. Tall=5 leafing out=9 adult=5 foliage=5 heavy (30-90%)=4

chemical=5

mature=10 damage only, miner = 6 total damage (100%)=5

dormant =11 past damage=6 borer = 7

roots=8

general dieback=9

gall=10



**Turf Checklist  
 Recommendations**

|                                   |  |  |            |
|-----------------------------------|--|--|------------|
| <b>Turf grass Species Present</b> | Kentucky Bluegrass____ Tall Fescue____ Perennial Ryegrass<br>Fine Leaf Fescue____ Other:                               |  |            |
| <b>Lawn Establishment</b>         | Age:____ Seed:____ Sod:____ Sun:____ Shade:  |  |            |
| <b>Thatch Accumulation</b>        | ____ <1/2"    ____ □to 1"    ____ >1"  |  |            |
| <b>Turf Density</b>               | Thick (TK)   Thin (TN)   Moderately Thick (MTK)   Sparce (SP)  |  |            |
| <b>Turf Color</b>                 | Dark Green (DG)   Light Green (LG)<br>Yellow Green (YG)   Turf Dormant (TD)  |  |            |
| <b>Soil</b>                       | Texture:   | Depth:   | Condition: |
| <b>Weeds</b>                      | Dandelion____ Crabgrass____ Plantain____ Oxalis Spurge<br>Knotweed____ Ground Ivy____ Yellow Nutsedge<br>Other:        |  |            |
| <b>Insects</b>                    | _____ Avg.No./Sq. Ft.<br>_____ Avg.No./Sq. Ft.   | _____ Avg.No./Sq. Ft.<br>_____ Avg.No./Sq. Ft. |            |
| <b>Disease</b>                    | Affected Species:_____ %Area of Turf Infected<br>Disease:<br>Affected Species:_____ %Area of Turf Infected<br>Disease: |  |            |
| <b>Cultural Practices</b>         | Mowing:_____   | Watering:                                      |            |

**Comments:**

