UNIVERSITY OF GEORGIA
Facilities Management Division

UNIVERSITY OF GEORGIA
GROUNDS DEPARTMENT

INTEGRATED PEST MANAGEMENT PROGRAM MANUAL

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A. Purpose

The Integrated Pest Management Program at the University of Georgia Grounds Department is an effort to provide a holistic approach to plant health care that shifts the focus from pesticide use to the development of a healthy vigorous campus landscape.

Integrated pest management is a program of reducing insect, weed and disease problems by maintaining a healthy and vigorous landscape, monitoring for problems and treating the problems with the most environmentally sound means available. It also includes the installation of properly planted well adapted turf and ornamentals which are chosen for their pest resistance and ability to thrive in the locations selected for them.

B. Evaluation of campus zones for pest and maintenance problems

1) Campus zones will be scouted regularly to identify and report any pest problems that are evident.

2) The Horticulturist, the Grounds Foreman and the IPM Supervisor will all routinely scout the campus for pest problems in the landscape. In addition to them, all crew leaders will be on guard for any evident problems in the landscape with pest or plant problems

   i. Utilize appropriate natural indicators to assist in predicting when pests problems may occur

3) Once a problem is identified the IPM Supervisor in conjunction with the Horticulturalist, will address the problem with the most environmentally sound method possible. If the problem is determined to be the result of horticultural practices the Grounds Foreman and Horticulturist will produce a strategy to address the situation.

C. Training of lead personnel in proper identification of plant health problems

1) Train all lead personnel in the following areas:
   i. Proper identification of common insect pests and the damage they can cause
   ii. Proper identification of common turf and ornamental diseases & weeds
   iii. Familiarity with the appearance of affected plants
   iv. Train personnel to distinguish between pest induced problems and general health problems associated with landscape plants

2) Ensure personnel are familiar with the plant materials utilized on campus
   i. Train personnel to be able to identify plants in their areas
   ii. Ensure personnel have knowledge of normal plant appearance and the ability to distinguish when plants are not performing well.

3) Train lead personnel in the ability to evaluate landscape situations that could contribute to plant problems
   i. Demonstrate to employees factors that can contribute to plant decline such as excessively wet soil, standing water, plants planted too low, excessive mulching, etc.
   ii. Schedule employees to routinely evaluate landscapes for human inflicted damage to plants that can stress plantings and encourage pests
      1. Scout for guy straps and wires being left on trees for too long
      2. Scout for excessive mulching around tree trunks
      3. Ensure mulch rings are adequate to prevent weed trimmer injury
      4. Be vigilant about compaction damage around plantings and trees during construction activities

D. Utilize appropriate cultural practices to enhance plant growth and performance

1) Turf:
   i. Aerate turf areas regularly to alleviate compaction
      1. Priority 1 areas – aerate 3 times per year
      2. Priority 2 areas – aerate 2 times per year
      3. Priority 3 areas – aerate 1 time per year
   ii. Topdress turf areas with compost
      1. Priority 1 areas – topdress 2 times per year
      2. Priority 2 areas – topdress 1 time per year
      3. Priority 3 areas- topdress 1 time per year
   iii. Evaluate turf for heavy thatch
      1. Dethatch priority 1 area turf that has excessive thatch – over 1”
   iv. Monitor irrigation
      1. Ensure irrigation is operating properly and is not covering hardscapes
      2. Test irrigation periodically to ensure there are no leaks or breaks

3. Set timers to water only as needed -
    a. Evaluate turf areas for moisture levels and schedule water events appropriately
    b. Areas should receive no more than 1" water per week and only when conditions require irrigation
    c. Timers should have rain sensors to prevent irrigation during rain events
4. Timer backup batteries should be replaced at the beginning of each spring to ensure proper operation in case of a power outage.
5. Installation of computer-based irrigation control system that utilizes evapo-transpiration rates, moisture sensors and area weather data to apply the most efficient amount of water needed to each area. Initiative underway to install computer linked controllers at all new capital projects as well as at major irrigation sites throughout the campus.

2) Landscape plantings:
   i. Apply sufficient organic mulch to ensure good soil moisture and adequate weed control – 3-5"
   ii. Ensure mulch is not heavily banked around plant trunks and tree trunks
   iii. Plants that have leaf fall that can be used as a mulch material should not have leaves removed, (i.e. Magnolia)
   iv. Monitor irrigation:
      1. Periodically evaluate irrigation to ensure it is working properly
      2. Repair any leaks or breaks immediately
      3. Ensure that newly installed irrigations have emitters in proper locations to utilize water properly
      4. Monitor moisture levels in soil to determine need for irrigation

E. Determination of acceptable level of pest damage or infestations and point at which corrective measures will be implemented

1) Turf:
   i. Apply pre emergence herbicides only on selected Priority 1 areas
   ii. When disease / insect damage/ weed infestation affects 10% of priority 1 area implement spot treatment
   iii. When disease / insect damage/ weed infestation affects 20 % of priority 1 area – preventive measures acceptable
   iv. When disease/insect damage/weed infestation affects 30% of priority 2 area - spot treat affected areas

v. When disease damage affects 40% of priority 2 area – spot treat affected areas – if potential exists for spread of disease to nearby priority 1 or 2 areas, preventive measures acceptable
vi. Priority 3 level areas will not be treated

2) Landscape plants:
i. Apply pre-emergence herbicides only to sites less than 2 yrs old and to those landscapes that historically have recurring weed problems
ii. When disease/ insect damage affects 20 % of planting, spot treat affected plants – hand pull weeds – spot treat with appropriate herbicide
iii. When disease/ insect damage affects 40% of planting, preventive applications are appropriate
iv. When disease / insect damage is likely to infect nearby plantings, preventive applications are appropriate

F. Identify problems that recur to the point of making the ornamental or turf decline.

1) Evaluate plant health, vigor, leaf appearance, bloom production, etc. to determine whether pest is having a deleterious effect on the plant
2) If recurring problem identify least environmentally damaging control measure that will control the pest and sustain the plant.
3) Apply appropriate material and evaluate plant bi-weekly thereafter to ensure adequate control of pest problem

G. Pesticide application guidelines

1) Training of applicators
i. Supervisors in charge of spray applications must be Georgia Commercial Certified applicators
ii. Conduct refresher training each spring for those applicators who apply pesticides under their supervisor's license
iii. Ensure all those applying pesticides have been properly trained in the techniques and safety procedures associated with pesticide applications
1. Wear gloves and eye protection at all times
2. Follow all label directions
3. Make sure all containers are properly labeled
4. Ensure applicators take into effect weather conditions when applying pesticides
a. No spraying if wind speed > 10mph.
b. Do not apply contact pesticides if rain is expected within 4 hours of application
c. Do not spray selective herbicides over non target plants when temperature exceeds 85 degrees.

5. Following application all treatment areas must be posted for 24 hours
6. Record all pesticide applications on day of application

2) Pesticide Selection
   i. Properly identify target pest
   ii. Schedule application once threshold level has been reached for that pest
   iii. Select most environmentally friendly pesticide for control
   iv. Use biological pesticides whenever applicable
   v. Follow all label directions carefully
   vi. Apply pesticides at lowest recommended rate
      1. Evaluate efficacy of pesticide application after two weeks
      2. Re apply pesticides if initial application proved ineffective
   vii. Ensure pesticide does not come into contact with sensitive plants or animals
      1. Ensure no run off into streams or lakes of materials that may harm fish or aquatic animals
3) Equipment calibration
   i. On boom equipment ensure all nozzles are operating efficiently and equally]
   ii. On spreader equipment calibrate for each type of granular material since particle size may vary from material to material
   iii. Measure all materials very carefully prior to mixing

H. Fertilizer Applications

1) Utilize slow release fertilizers on all turf applications
   i. Perform soil tests on turf areas to evaluate need of soil amendments and fertilizer rates.
   ii. On priority 1 areas apply fertilizer at the rate of 1 lb. N / 1000 ft. sq.
      1. Fertilize cool season grasses once in spring and once in fall
      2. Fertilize warm season grasses once in late spring and once in mid summer

   iii. On priority 2 areas fertilize at the rate of 1 lb. N / 1000 ft sq.
      1. Fertilize cool season grasses once in spring and once in fall
      2. Fertilize warm season grasses once in late spring

   iv. On priority 3 areas utilize compost topdressing as fertilizer source

2) Evaluate landscape areas for nutrient deficiencies- perform soil tests to determine nature of problem and amend soil as needed according to soil test recommendations – fertilize according to recommended guidelines to re-establish plant health and vigor using slow release fertilizer

I. Develop landscape plantings that are less susceptible to insect, disease and weed pests

1) Identify plants in existing plantings that are susceptible to environmental and pest problems
    i. Those plants that have become stressed more easily should be replaced with alternative, more resilient species
2) Select plants that are most adapted to the microclimate and exposure they are planted in
3) Select turf according to exposure and application – whether athletic turf, high impact turf or primarily ground cover turf
4) Select plants that utilize less water and are more resistant to drought once established

J. Reference Materials to be Utilized for Implementation of IPM Strategies

1) UGA College of Agricultural and Environmental Sciences Landscape Integrated Pest Manual (Williams-Woodward, Sparks)
2) UGA Cooperative Extension Georgia Pest Control Handbook
3) GGIA Landscape Specialists Training Manual
4) UGA Cooperative Extension Service - Weeds of Southern Turfgrasses Manual
5) Insects that Feed on Trees and Shrubs (Johnson & Lyon)
6) Diseases of Trees and Shrubs (Sinclair, Lyon & Johnson)
7) Coincide – The Orton system of Pest Management (Orton)
8) A Compilation of Low Maintenance Plants for Georgia Landscapes (Corley, Midcap, Garber & Wade)
9) Characteristics and Adaptability of Landscape Plants (Wade)

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