

SARASOTA COUNTY INTEGRATED PEST MANAGEMENT PROCEDURAL GUIDELINES

1. Subject: Integrated Pest Management (IPM) is a practice promoting sustainable pest management methods that minimize health, environmental and economic risks. It is an approach that uses a combination of techniques to suppress pest populations (e.g., weeds, insects, diseases, etc.). All necessary techniques are consolidated in a unified program so that pests are kept at acceptable levels in an effective and economical manner that is not detrimental to human health and the environment.
2. Authority: Sarasota County Board of County Commissioners Resolution No. 2005-110 which confirms the continued adoption of Integrated Pest Management as the county's standard pest management practice and maintains the Integrated Pest Management Advisory Board. This document is in accordance with Resolution number 02-119, Sustainable Stewardship, and Section 2-230, Environmentally Preferred Procurement, of the Sarasota County Procurement Code Ordinance Number 2003-084.
3. Purpose: This document sets forth procedures in accordance with the Integrated Pest Management Resolution No. 2005-110 and provides guidelines for all levels of the county involved in activities related to the management of pests and undesirable vegetation, including contractual services.
4. Policy: It is the goal of Sarasota County Government to reduce the risk to human health and the environment by minimizing the use of pesticides through application of integrated pest management practices and emphasizing proven, effective least-toxic and non-toxic approaches and products.
 - 4.1 The IPM Program: The aim of the program is to suppress pests and undesirable vegetation with minimum impact on human health, the environment, and non-target organisms. The success of the program depends on adherence to the step by step IPM process listed below. IPM is not a single chemical approach or strategy but a decision making process that involves a combination of practices to control problems. Control tactics can be cultural or biological. For example: adopting environmental landscape management (ELM) practices that include appropriate plant selection and use of good cultural practices, appropriate use of design and materials to prevent pest problems, proper housekeeping and maintenance to minimize indoor pest problems, expanded larvicide enhancement areas to prevent mosquito production, and increased education of the public on IPM practices and potential effects of pesticides on health and the environment. Where chemical control strategies are required, they will use only those pest management products on the approved list of products. IPM requires more information, thought and team planning than ordinary, single approach management strategies, but the outcome is a healthier community and environment.

All county personnel and contractors will adhere to the step by step process in section 4.2 below.

- 4.2 The IPM Process:

- Step # 1 – IDENTIFICATION and SCOUTING - Identify the type of pest or undesirable vegetation problem by scouting and inspection. Understand pest biology.
- Step# 2 – MONITORING - Determine the extent of injury or problem levels (set thresholds); Use visual inspection or monitoring devices. Keep records.
- Step # 3 – ANALYSIS – Based on findings in 1 or 2, determine if action should be taken, or take no action and continue monitoring.
- Step # 4 – REVIEW CONTROL OPTIONS – Review cultural, mechanical, biological, as well as chemical control options.
- Step # 5 – SELECT CONTROL TACTICS - Select the most environmentally sound and economically viable treatment strategies to suppress the pest problem. Least-toxic methods must be used before more toxic ones.
- Step # 6 – USE ACCEPTABLE PESTICIDES - Use only products which are on Sarasota County's list of approved pesticides.
- Step # 7 – EVALUATE RESULTS – After implementation of control measures, evaluate to determine if action taken has been effective in pest reduction and is cost effective.
- Step # 8 - RECORD-KEEPING – Record all pesticides used, rates used, amounts applied and sites of application. Labels and MSDS sheets must be available and maintained at all times with the applicator and in facilities where materials are stored.

5 IPM Coordinator responsibilities:

- a) Chair the IPM Working Group and assist county business units in implementing the IPM Policies and Procedures
- b) Provide staff support to the Integrated Pest Management Advisory Board
- c) Provide support for educational programs on IPM activities
- d) Update IPM policy and procedures as required
- e) In consultation with the IPM Advisory Board, develop a list of acceptable pest management products in accordance with the IPM approach and review and update the list annually
- f) have readily available all labels and Material Safety Data Sheets (MSDS) for pesticides being used by county staff and vendors
- g) Conduct periodic evaluations of the IPM programs to ensure that this policy is carried out. Use monthly reports of pesticides purchased and amounts used as part of the review to determine compliance with IPM guidelines and whether improvements are needed

(See Applicator Responsibilities below)

6 The Business Center responsibilities:

- a) Develop an integrated pest management plan for the unit.
- b) Establish IPM performance measures to reduce the use of chemical pesticides and increase monitoring. Have a designated member attend IPM Working Group Meetings. Assist the county IPM Coordinator and IPM Advisory Board in developing recommended policy.

- c) Provide for continuing education and certification training of applicator staff. Assistance will be provided by Cooperative Extension personnel and other qualified people in the county or state.
- d) Modify job descriptions to assure that training and educational requirements for applicator personnel comply with state regulations pertaining to the control of vegetation and pests and the use of pesticides.
- e) Prohibit the purchase or use of unapproved pesticides. Any special need to use other than approved list pesticides must be approved by the IPM Coordinator in consultation with the IPM Advisory Board. Units must submit a request form and gain written approval to have a product added to the list (See Form, Appendix B).
- f) Assist the county IPM Coordinator with program assessment by ensuring that monthly reports of pesticides purchased and amounts used are forwarded to the IPM Coordinator for review.
- g) Require that each employee assigned to handle pesticides is adequately trained in pesticide safety and correct pesticide handling procedures before they are allowed to handle pesticides.
- h) Submit all annual agreements that contain requirements for application of pesticides to the IPM Coordinator and IPM Advisory Board before going out to bid. Establish a monitoring program for all agreements and evaluate contractor programs to assure compliance with IPM principles and desired outcomes.
- i) Require that all full-time employees and vendors have appropriate state certifications. If a pesticide must be mixed before application, the applicator must be certified or be a carded employee under the direct supervision of a certified person. ***Ready-to-use pesticides on the approved list do not require applicator certification for projects requiring 5 gallons or less.***
- j) Prohibit hand-held application of herbicides from windows of vehicles to control of weeds on sidewalks and other impervious surfaces along streets and roads.
- k) Ensure that pesticides are properly maintained and stored. Pesticides must be in an appropriate building that contains spill cleanup equipment and written emergency spill response procedures, along with the names of the primary and secondary persons responsible for the storage facility.

7 County Applicator Responsibilities:

- a) *No pest management treatments are to be conducted unless the problem has been identified and scouted.* Integrated Pest Management (IPM) in Sarasota County is a decision making approach to managing vectors, pests and undesirable vegetation. Monitoring is one of the most important components of IPM.
- b) Use least toxic pesticides only when other control methods would not be effective or practical in maintaining the established level of service. Select effective pesticides from the approved list that are the least toxic, effective products available in order to minimize risk to the applicator as well as other people and non-target organisms.
- c) Avoid disruption of natural enemies by becoming familiar with beneficial organisms. Use available charts and literature to evaluate impact of control strategies and their toxicity to specific natural enemies.

- d) Pesticide efficacy can vary from one pest to another, one location to another, and even from one year to the next in the same location. It is essential when pesticides have to be used to select the correct materials based upon their least toxic impact and efficacy. Record keeping will be used to support selections.
- e) Regular monitoring of pest and beneficial populations will determine the optimal times for applying pesticides or other practices and enhance their effectiveness. Control insect pests during the most vulnerable point in their life cycle or growth period. The same holds true for undesirable vegetation. Young, actively growing weeds are usually the easiest to control or remove. Control weeds before they produce seeds.
- f) Follow the label to determine the rate and method of application. The control action chosen must focus on the site of the problem so that only areas that need to be treated are targeted. Proper application will maximize effectiveness and minimize effects on beneficial organisms. The goal is to use the most environmentally responsible and effective pesticide.
- g) Liquid sprays must not be applied when winds exceed ten miles per hour so as to minimize any undesirable drift.
- h) Applicators must use the minimum personal protective equipment (PPE) required by the label or comply with business center policy if it holds a higher standard.
- i) Observe action thresholds of pest levels, if available, to determine when numbers or situations pose a problem. Maintain records of numbers or kinds of problems to track occurrence and evaluate actions taken.
- j) Adhere to the following pesticide procedures:
 - 7.1 Public notification of pesticide applications (according to each business center's operations for specific pests).
 - 7.2 Proper application techniques
 - 7.3 Knowledge and actions to follow in the event of a pesticide spill
 - 7.4 Proper pesticide storage procedures
 - 7.5 Cleaning and calibration of equipment procedures
 - 7.6 Storage and disposal of pesticide containers
 - 7.7 Scouting and record keeping
 - 7.8 Strict compliance with each EPA label's personal protection equipment (PPE) requirements
 - 7.9 Maintenance of up-to-date records of pesticide purchased, amounts used and balance on hand

8 Pest Management Contract Managers' and Contractors' responsibilities:

All county contracts will include the IPM process listed above.

- a) The contract manager will monitor and evaluate the effectiveness of the IPM practice and compliance with IPM principles. Additionally, the contract manager will evaluate applications to assess effectiveness of pest management approaches consistent with desired outcomes.
- b) Contracts must stipulate the responsibility of the contract manager and contractor in carrying out inspections.

- c) Contracts will contain a list of approved products. Any deviation from this list must be approved by the contract manager in consultation with the IPM Coordinator as described above in section 5e.

9 Development of Integrated Pest Management Plans:

- a) All business centers are required to refer to the steps in the IPM process (section 4.2) in developing a written IPM plan. Each individual plan will include the following:
 - b) Describe in detail the area of pest management responsibility and maintenance (number of acres of canals, ponds, roadsides, athletic fields, parks, natural areas, buildings, bedding plants, street trees, etc.)
 - c) Identify the pests or undesirable vegetation problems.
 - d) Describe scouting and inspection procedures.
 - e) Describe control options, including cultural, mechanical, biological as well as chemical (selected from the approved list).
 - f) Include samples of record keeping forms.
 - g) List personnel involved by position description and required certifications (e.g. limited, restricted, public health, etc.)

10 Selected Areas of Concern:

- a) Building construction: The construction, renovation or expansion of any county building shall require:
 - i. Appropriate design to exclude pests such as rats, birds, etc.
 - ii. Termite prevention using in-ground bait stations, borate saturation treatment of above-ground wood materials or non-chemical exclusion methods.
- b) Building maintenance shall include:
 - i. Proper housekeeping and storage to avoid attracting pests.
 - ii. Indoor use of least toxic alternatives only, including traps, bait stations, gels, dusts or other approved pesticides to address pest problems that arise.
 - iii. Indoor pest management will not include chemical spray applications.
- c) Contractual management of county building landscapes: The environmental landscape management requirements are as stated in the grounds maintenance contract.
- d) Aquatic weed and roadside spraying: Consider non-chemical means of control when and where practical and effective.

11 Approved and Non-approved Pesticides:

- a) **Appendix A** is the approved list of pesticides for use in Sarasota County Government. County personnel and contractors involved in the application of pesticides must only use products on the approved list. Use of products other than those on this list is prohibited on any county-owned property or facilities. Products to be added to the list must be recommended to and approved by the IPM Coordinator in consultation with the IPM Advisory Board.

b) The categories and/or products listed below are prohibited for use.

Prohibited products include:

- Organochlorine insecticides
- Organophosphate insecticides (except those currently used by the Mosquito Control District)
- Fipronil (prohibited for turf use)
- Atrazine (prohibited for turf or landscaping)

Approved:

James L. Ley, County Administrator

Date

APPENDIX A: LIST OF APPROVED PESTICIDES FOR USE IN SARASOTA COUNTY GOVERNMENT

County personnel or contractors involved in the application of pesticides must only use products on the approved list in the approved target area. Use of products other than those on this list is prohibited on any county-owned property or facilities. Products for inclusion in the IPM program must be submitted to and approved by the IPM Coordinator in consultation with the IPM Advisory Board.

INSECTICIDES (Mosquito Management)

➤ Adult Mosquitoes

- Naled 87.4% (Dibrom[®] Concentrate) – aerial applications
- Sumethrin[®] 5%, Prallethrin 1% (Duet[™] Dual-action) - ground applications
- Permethrin 4%, Piperonyl Butoxide 4% (Biomist[®] ULV 4+4) – ground applications

➤ Larval Mosquitoes

- *Bacillus thuringiensis israelensis* 2.86% (Mosquito Bits[®])
- *Bacillus thuringiensis israelensis* 2.80% (VectoBac[®] G)
- *Bacillus thuringiensis israelensis* 1.2% (VectoBac[®] 12 AS)
- *Bacillus thuringiensis israelensis* 51.5%, (Vectolex[®] CG)
- *Gambusia holbrooki* (mosquito fish) – biological control
- (S)-Methoprene 2.1% (Altosid[®] XR Extended Residual Briquettes)
- (S)-Methoprene 4.25% (Altosid[®] Pellets)
- (S)-Methoprene 1.5% (Altosid[®] XRG Pre-Strike pouches or Altosid[®] PRO-G) Temephos 5% (Skeeter Abate[®])

➤ Larvicide/Pupacide

- Agnique[®] MMF 100%^a
- Aliphatic Petroleum Distillate 98.7% (Golden Bear 1111)

➤ **Repellents**

- Deet 29%^b – insect repellent*

INSECTICIDES (Building Structures, Interior/Exterior)

➤ **Ants, Cockroaches**

- Boric acid dusts*
- Diatomaceous Earth*
- Silica gel*
- Eugenol 2.90%, Thyme oil 0.6% (EcoEXEMPT[®] G) – granules for ants, cockroaches, crawling insects
- 2-Phenethyl Propionate 4.50%, Eugenol 1.75% (EcoEXEMPT[®] D) – dust for cracks and crevices
- Thiamethoxam 0.010% (Optigard[™]) – ant gel bait
- Abamectin, Borax, Orthoboric Acid, Hydramethylnon, Hydropene, Indoxacarb, Methoprene, Pyriproxyfen, Spinosad, Sufluramid – (Solid, liquid, granular and gel baits*)
- Virginia Cedar oil (Gourmet Plus) – drench for fire ants

➤ **Crawling Insects/Foliar Pests/Flying Insects**

- Potassium Salts of Fatty Acids 49% (M-Pede[®]) – insecticidal soaps
- Rosemary Oil 10%, Peppermint oil 2% (EcoExempt[®] IC²) –liquid spray, crawling insects
- 2-Phenethyl Propionate 0.1% (EcoPCO[®] ACU) – crawling and flying Insects
- 2-Phenethyl Propionate 1.0%, 0.4% Pyrethrins - (EcoPCO[®] AR X) - crawling and flying Insects
- 2-Phenethyl Propionate 1.0%, Piperonyl Butoxide 3.0% (EcoPCO[®] Jet X) - aerosol jet spray wasp nests

➤ **Termites (Subterranean)**

- Termite baits Stations* (Sentricon[®] or the equivalent)
- 0.25% Diflubenzuron (Labyrinth[™] or equivalent)

➤ **Termites (Drywood)**

- Borate Compounds* (liquid spray, mist, and foam injection) – primary control option
- Premise[®]* or equivalent (Imidacloprid) – gallery injection only

^a Monomolecular Surface Film for Control of Immature Mosquitoes and Midges

^b 29% or less recommended. Increased active ingredient does not repellency

*Brand and/or concentration not specified. Choose most appropriate least toxic option

- Fipronil 9.1% (Termidor[®] SC or equivalent) – gallery injection only as a last resort for historical buildings (pre 1940 construction) and with facilities management approval.

INSECTICIDES (Landscapes)

➤ Beetles, Caterpillars

- *Bacillus thuringiensis* subsp. *B.t. aizawai*, *B.t.kurstaki*, *B.t.tenebrionis* – liquid sprays*

➤ Foliar Pests (Aphids, Scales, Mealybugs)

- Salts of Fatty Acids* (Insecticidal Soaps)
- Refined Oils* (Horticultural Oils)
- Spinosad 11.6% (Conserve[®] SC) - liquid spray for crawling insects

➤ Ants

- Abamectin, Borax, Orthoboric Acid, Hydramethylnon, Hydropene, Indoxacarb, Methoprene, Pyriproxyfen, Spinosad - solid, liquid, granular and gel baits*
- Virginia Cedar oil (Gourmet Plus) –drench for fire ants

INSECTICIDES (Athletic Fields)

➤ Fall armyworms, sod webworms

- Spinosad 11.6% (Conserve[®] SC) - liquid spray for crawling insects

➤ Fire ants

- Virginia Cedar oil (Gourmet Plus) – drench for fire ants
- Spinosad 0.5% (Conserve Naturalyte) – drench for fire ants
- Indoxacarb 0.045% (Advion[®] or equivalent) – fire ant bait
- Hydramethylnon 0.73% (Amdro[®] or equivalent) - fire ant bait
- (S)-Methoprene 0.5% (Extinguish[®] or equivalent) – fire ant bait

➤ Mole crickets

- Biological Control
 - Nematodes, *Steinernema scapterisci* 27% (Nematac[®] S), parasitic nematode of adult mole crickets and last stage nymphs
 - Larra wasps, *Larra analis*, ectoparasitoid of adult mole crickets and last stage nymphs
- Chemical Control
 - Indoxacarb 0.22% (Advion[®] or equivalent) – granular bait
 - Imidacloprid 75% (Merit[®] 75W or equivalent) – primary liquid systemic spray for newly hatched mole cricket nymphs

- Bifenthrin 7.9% (Talstarone™ Multi-Insecticide) – last resort control of mole cricket infestations where other controls have failed

HERBICIDES (Ditches, Rights-of-way, Roadsides)

➤ **Annual and Perennial weeds**

- Glyphosate 53.8% (Rodeo® or equivalent) – roadside curbs and sidewalks
- Sulfometuron methyl 75% (Oust® XP or equivalent) – weeds in bullheads and medians
- Glufosinate-Ammonium 11.33% (Finale® or equivalent) – contact and systemic nonselective weed control for road projects
- Carfentrazone-ethyl 0.54%, 2, 4-D 10.49%, Mecoprop 2.66%, Dicamba 0.67% (Speed Zone® Southern or equivalent)

HERBICIDES (Canals, Stormwater Ponds)

➤ **Algae**

- Copper 8.0% (K-Tea™ or equivalent) – algae control

➤ **Aquatic Weeds: Submerged**

- Dipotassium Salt of Endothall 40.3% (Aquathol® K or equivalent), short-term pretreatment before planting
- Flouridone 5.0% (Sonar™ PR, Sonar™ Q, Sonar™ SPR or equivalent) – long-term hydrilla and other submerged weed species control
- Flouridone 41.7% (Sonar™ AS or equivalent) – long-term hydrilla control

➤ **Aquatic Weeds: Emerged^c**

- Diquat Dibromide 37.3% (Reward® or equivalent) – aquatic weed control
- Glyphosate 53.8% (Rodeo® or equivalent) – nonselective, emergent aquatic weed control

➤ **Broadleaf Aquatic Vegetation^d**

- 2, 4-D 46.8% (Weedar® 64 or equivalent) – woody vegetation and water hyacinth control
- 2, 4-D 47.3% (Platoon™ or equivalent) – woody vegetation and water hyacinth control

HERBICIDES (Athletic Fields, Parks)

➤ **Broadleaf weed control**

- Carfentrazone-ethyl 0.54%, 2, 4-D 10.49%, Mecoprop 2.66%, Dicamba 0.67% (Speed Zone® Southern or equivalent)
- Carfentrazone-ethyl 0.62%, 2, 4-D 28%, Mecoprop 5.88%, Dicamba 1.71% (Speed Zone® or equivalent)
- Corn Gluten*, natural pre-emergent weed control^e

^c Whenever possible the use of Glyphosate is preferred

^d Whenever possible the use of Glyphosate is preferred

^e Within the regulations and timing restrictions outlined in the County Fertilizer Ordinance 2007 - 062

➤ **Smut grass**

- Foramsulfuron 2.34% (Revolver™ or equivalent) – spot treatment

➤ **Nonselective weed control**

- Glyphosate 53.8% (Rodeo® or equivalent) – nonselective control
- 2- Phenethyl Propionate 21.4%, Eugenol 21.4% (EcoEXEMPT® HC) – nonselective burn down
- Pelargonic Acid 57% (Scythe® or equivalent) –nonselective burn down
- Prodiamine 40.7% (Barricade® 4FL or equivalent) – pre-emergent

➤ **Yellow and purple nutsedge**

- Halosulfuron 75% (SedgeHammer™ or equivalent)

➤ **Florida pusley**

- Metasulfuron 60% (Manor® Selective Herbicide or equivalent) – spot treatment

➤ **Goosegrass**

- Metribuzin 75% (Sencor® 75 or equivalent)

➤ **Grassy Weeds** (crabgrass, bahiagrass, Dallisgrass, crowfootgrass)

- Monosodium Methanearsonate (MSMA)*

HERBICIDES (Landscapes)

- 2- Phenethyl Propionate 21.4%, Eugenol 21.4% (EcoEXEMPT® HC) – nonselective burndown
- Glyphosate 53.8% (Rodeo® or equivalent) – nonselective control
- Pelargonic Acid 57% (Scythe® or equivalent) – nonselective burn down
- Prodiamine 40.7% (Barricade® 4FL or equivalent) – pre-emergent
- Fluazifop-butyl 24.5% (Fusilade® II or equivalent) – control of torpedo- and Bermudagrass in broadleaf beds

HERBICIDES (Natural Areas, Upland Parks)

➤ **Melaleuca, Brazilian Pepper, and other woody invasives**

- Imazapyr 28.7% (Arsenal® or equivalent) – cut stump treatment of melaleuca and other exotics
- Imazapyr 28.7% (Habitat® or equivalent) – Melaleuca or other exotics associated with wetlands or aquatic areas
- Triclopyr 60.45% (Garlon® 4 Ultra^f or equivalent) – cut stump and basal bark control of Brazilian peppers and other exotics

^f Garlon 4® Ultra replaces Garlon 4®

- Triclopyr 13.6% (Pathfinder[®] II or equivalent), ready to use cut-stump/basal bark for Brazilian Peppers and other exotics

➤ **Cogon grass and other invasive grasses**

- Imazapyr 28.7% (Arsenal[®] or equivalent) – upland areas
- Imazapyr 28.7% (Habitat[®] or equivalent) – in areas or associated with wetlands or aquatic areas
- Glyphosate 53.8% (Rodeo[®] or equivalent) – nonselective control in upland areas or associated with wetlands or aquatic areas

HERBICIDES (Street Trees)

Weed Control

- Oryzalin 40.4% (Surflan[®] AS or equivalent) – pre-emergent
- Glyphosate 53.8% (Rodeo[®] or equivalent) – nonselective control

FUNGICIDES

- Methoxyacetyl amino Propionic Acid 22% (Subdue[®] Maxx or equivalent)

VERTEBRATE CONTROL

Mole Control

- Bromethalin 0.025% (Talpid or equivalent) - bait
- Warfarin 0.025% (Kaput[®] or equivalent) - gel bait

Rodent control

- Brodifacoum 0.005% - (Talon[®], Havoc[®] or equivalent) - bait
- Anticoagulant rat control baits* in secure boxes - (Brodifacoum, Bromadiolone, Difethialone)

**Request for Approval of a Pest Management Product
IPM Form 2008-1**

REQUESTOR INFORMATION

Requesting Activity	Business Ctr.	
Point of Contact	Title	
Telephone	Fax	e-mail

PRODUCT INFORMATION ¹

Generic Name	Trade Name
Class ²	Formulation ³
Ready to Use? Yes No	Active Ingredient (%)

**TARGET PEST AND PROPOSED SITE(S) OF USE
(Attach additional sheet if needed)**

**JUSTIFICATION
(Attach additional sheet if needed)**

REQUESTOR
SIGNATURE _____ **Date** _____

IPM COORDINATOR ACTION: APPROVED	DISAPPROVED
SIGNATURE _____	Date _____

- 1- Provide product label and MSDS with form to County IPM Coordinator
- 2- Example: Organophosphate; Pyrethroid, IGR, etc.
- 3- Example: Granular; Aerosol; Emulsifiable Concentrate