MARTIN COUNTY BOARD OF COUNTY COMMISSIONERS

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.

A viable IPM program requires the adoption of a sustainable chemicals management policy. This policy should be based on the principle of substitution as the primary criteria for chemical management within Martin County's IPM program. With the principle of substitution as a framework, the promotion of safer chemicals in processes will be implemented with county and contractor sectors within the Martin County Government managed areas and the use of safer chemicals and where possible the overall reduction in chemical usage in products should be incorporated at the design stage.

The principle of substitution states that hazardous chemicals should be systemically substituted by less hazardous alternatives or preferably alternatives for which no hazards can be identified. The Martin County IPM program will assiduously apply this principle as we review our approved chemical list each year.

2. Authority:

On September 25th, 2018, the Board directed staff to pursue an Integrated Pest Management (IPM) Program. Representatives from all applicable departments within the county shall comprise a working group tasked with the development and oversight of the IPM Program and shall be referred to herein as the 'Pesticide Stewardship Working Group.'

3. Purpose:

This document provides guidelines for all levels of the county involved in activities related to the management of pests and undesirable vegetation, including contractual services, and sets forth procedures in accordance with the Integrated Pest Management Program.

4. Policy:

It is the goal of Martin County Government to reduce the risk to human health and the environment from pests through the application of integrated pest management practices and emphasizing proven, effective least-toxic and non-toxic approaches and products in County practices.

Nothing in this guidance should be construed as being less restrictive than federal or state law. If an employee discovers that the policy is less restrictive than federal or state law, the employee should promptly notify his or her supervisor and the Pesticide Stewardship Working Group. A goal of Martin County is to set a higher standard for its employees than current federal or state law.

Definitions per Florida Statute 487.021:

"Certification" means the recognition by the Florida Department of Agriculture and Consumer Services that an individual is a competent pesticide applicator and, thus, is eligible for a pesticide applicator's license in one or more of the designated license types and categories.

"Certified Applicator" means any individual who has been recognized by the department as a competent pesticide applicator and, thus, is eligible to apply for licensure in one or more of the designated license types and categories.

"Licensed Applicator" means an individual who has reached the age of majority and is authorized by license from the Florida Department of Agriculture and Consumer Services to use or supervise the use of any restricted-use pesticide covered by the license.

"Pest" means any insect, rodent, nematode, fungus, weed; or any other form of terrestrial or aquatic plant life or animal life or virus, bacteria, or other microorganism, except viruses, bacteria, or other microorganisms on or in living humans or other living animals, which is declared to be a pest by the administrator of the United States Environmental Protection Agency or which may be declared to be a pest by the department by rule.

"Pesticide" means any substance or mixture of substances intended for preventing, destroying, repelling, or mitigating any insects, rodents, nematodes, fungi, weeds, or other forms of plan or animal life or viruses, except viruses, bacteria, or fungi on or in living humans or other animals, which the Department of Agriculture and Consumer Services by rule declares to be a pest, and any substance or mixture of substances intended for use as a plant regulator, defoliant, or desiccant; however, the term "pesticide" does not include any article that: is a "new animal drug" within the meaning of s. 201(w) of the Federal Food, Drug, and Cosmetic Act; has been determined by the Secretary of the United States Department of Health and Human Services not to be a new animal drug by a regulation establishing conditions for use for the article; or is an animal feed within the meaning of s. 201(x) of the Federal Food, Drug, and Cosmetic Act bearing or containing an article covered in this subsection.

"Restricted-Use Pesticide" means a pesticide which, when applied in accordance with its directions for use, warnings, and cautions and for uses for which it is registered or for one or more such uses, or in accordance with a widespread and commonly recognized practice, may generally cause, without additional regulatory restrictions, unreasonable adverse effects on the environment, or injury to the applicator or other persons, and which has been classified as a restricted-use pesticide by the Department of Agriculture and Consumer Services or the administrator of the United States Environmental Protection Agency.

i. The IPM Program:

According to Florida Statute 482.021(15): "Integrated pest management" means the selection, integration, and implementation of multiple pest control techniques based

on predictable economic, ecological, and sociological consequences, making maximum use of naturally occurring pest controls, such as weather, disease agents, and parasitoids, using various biological, physical, chemical, and habitat modification methods of control, and using artificial controls only as required to keep particular pests from surpassing intolerable population levels predetermined from an accurate assessment of the pest damage potential and the ecological, sociological, and economic cost of other control measures".

The aim of the Martin County 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 IPM Protocol listed below in 4.ii. 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, mechanical, biological, or chemical.

For example: adopting Florida Friendly Landscaping™ 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, staff and contractors will not use any pest management products on the prohibited list and will attempt to tier strategies. 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 IPM Protocol in Section 4.ii below.

ii. The IPM Protocol:

- PEST PREVENTION through building exclusion, maintenance, sanitation, source reduction, and monitoring.
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- IDENTIFICATION and SCOUTING -Identify the type of pest or undesirable vegetation problem through inspections and scouting. Understand pest biology.

- MONITORING- Determine the extent of injury or problem levels (set action thresholds). Use visual inspection or monitoring devices. Monitor areas frequently enough to detect problems before they become major infestations that will require more chemicals to maintain. Keep records.

- ANALYSIS - Based on findings during identification, scouting and/or monitoring, determine best response: options of take no action, continue monitoring (collect more data) or act to address pest.

- REVIEW CONTROL OPTIONS- Review available cultural, mechanical, biological, as well as chemical control options.

- 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.

- EVALUATE RESULTS- After implementation of control measures, evaluate to determine if action taken has been effective in pest reduction and is cost effective.

- 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 all facilities where materials are stored. Review records annually to verify compliance with directive to reduce chemical usage where possible.

5. Pesticide Stewardship Working Group Responsibilities:

- Staff the Pesticide Stewardship Working Group and assist county departments in implementing the IPM Policies and Procedures.

- Provide support for educational programs on IPM activities.

- Update IPM policy and procedures as required.

- IPM plans, which will include an escalation protocol and acceptable pest management products where appropriate, will be reviewed annually.

- Have readily available all labels and Material Safety Data Sheets (MSDS) for pesticides being used by county staff and vendors.

- Conduct annual evaluations of the IPM programs to ensure that this policy is carried out. Review monthly inventory and usage pesticide reports submitted by county departments to monitor compliance and evaluate the IPM program.

- Assist county departments in complying with regulations involving pest management and pesticide application [e.g. FDACS certifications, NPDES, etc.]. (See Applicator Responsibilities below).

- Assist county departments with annual pesticide use compliance self-audits

- Research alternative products and methods being developed for inclusion in the IPM program.

6. Department Responsibilities

- In consultation with the Pesticide Stewardship Working Group, develop an IPM plan for applicable assets managed by the department [see section 9 for requirements]. This plan should be updated as needed and reviewed annually at a minimum.

- Establish IPM performance measures to reduce the use of chemical pesticides and

increase monitoring. Have a designated member attend Pesticide Stewardship Working Group Meetings. Assist the Pesticide Stewardship Working Group in developing policy recommendations.

- State law and federal regulation require training for applicators, pesticide handlers, and agricultural workers. All three of Florida's laws governing pesticide applications (Chapter 388 FS, Ch 482 FS, and Ch 487 FS) require training for applicators who work under the direct supervision of a certified applicator. Each County Department shall provide for continuing education and certification training of applicator and handler staff, as well as employees who may come into contact with pesticides through their work. Assistance will be provided by UF/IFAS Extension personnel and other qualified people in the county or state. Employees must be adequately trained and, if required, certified, before they apply or handle (mix, load, transfer, apply, dispose of) pesticides.

- 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.

- Assist the Pesticide Stewardship Working Group with program assessment by ensuring that quarterly pesticide application reports including targeted pests and products used are forwarded to the Pesticide Stewardship Working Group for review.

- Submit all annual agreements that may contain or require the application of pesticides to the Pesticide Stewardship Working Group at least 30 days 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.

- Require that all employees and vendors have appropriate state certifications where applicable.

- Prohibit hand-held application of herbicides from licensed vehicles to control weeds on sidewalks and other impervious surfaces along streets and roads.

- Ensure that pesticides are properly maintained and stored. Pesticides must be locked 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. Pesticides in vehicles must also be locked.

- Conduct safety audits of materials being used, accurate record keeping, and proper storage methods.

7. County Applicator Responsibilities

- No pest management treatments are to be conducted unless the problem has been identified and scouted. Monitoring is one of the most important components of IPM.

- Follow the pesticide label directions. The label is federal and state law. The label directions will 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.

- Practice pesticide resistance management by rotating chemical classes which can be found on the label.
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- Use pesticides only when other control methods would not be or have not been effective or practical in maintaining the established level of service. Select effective pesticides 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.

- Avoid disruption of natural enemies by becoming familiar with beneficial organisms. Consult the product label for guidance on how to use the product in a manner that minimizes impacts on biocontrol. Consult the Pesticide Stewardship Working Group or use available charts and literature to evaluate impact of control strategies and their toxicity to specific natural enemies.

- 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 are required to select the correct materials based upon their least toxic impact and efficacy. Record keeping will be used to support selections.

- 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.

- Employees shall ensure that any pesticide being applied does not contact, either directly or as spray drift, any worker or other person. Liquid sprays must not be applied when winds exceed speed indicated on the label or ten miles per hour if not specified, so as to minimize any undesirable drift.

- Applicators must use the minimum personal protective equipment (PPE) required by the label or comply with county policy if it holds a higher standard.

- Observe action thresholds of pest levels, to determine when numbers or situations pose a problem. Maintain records of numbers or kinds of problems to track occurrence and evaluate actions taken. Consult with supervisor as needed, where appropriate.

- Adhere to the following pesticide procedures:

    - Public notification of pesticide applications (according to each department's operations for specific pests and always when required by the product label).

    - Proper application techniques

    - Knowledge and actions to follow in the event of a pesticide spill or accident

    - Proper pesticide storage procedures

- Cleaning and calibration of equipment procedures
- Storage and disposal of pesticide containers, including marking of pesticide containers with the date the container was received.
- Scouting and record keeping
- Strict compliance with each EPA label's personal protection equipment (PPE) requirements and best practices regarding PPE maintenance
- 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 in section 7. 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. Lastly contract manager shall give prior notice to individual residents on mitigation activities that are on the State and County chemically registered list.
- Contract managers will obtain record of contractor's FDACS certification carrying the appropriate category for desired pest management activity.
- Contracts must stipulate the responsibility of the contract manager and contractor in carrying out inspections.
- Contracts will contain a list of prohibited products.
- Contractors responsible for applying pesticides will adhere to all FDACS regulations regarding proper pesticide applicator licensing of staff.
- County contract managers may require greater level of licensing or license oversight than required by the State dependent on specific project needs or environmental sensitivity of areas being maintained or modified under the contract.

9. Development of Integrated Pest Management Plans

- 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.)
- Identify the pests or undesirable vegetation problems. Describe several examples for the unit's common pest management activities including monitoring, threshold levels, and specific control strategies (Le. mechanical, chemical control).
- Describe scouting and inspection procedures.

- Describe control options, including cultural, mechanical, biological as well as chemical.

- Include samples of record keeping forms.

- Current list personnel involved by position description and required FDACS certifications (e.g. limited, restricted, public health, etc.).

- Current contracts that fall underneath IPM plan.

- Location of any pesticide storage facility. Description of storage area with location of SDS, on site PPE, eye wash stations, and spill kits. If necessary, describe products and approximate amounts to be reported to State Emergency Response Commission for Tier II Emergency and Hazardous Chemical Inventory reports.

10. Selected Areas of Concern:

- Environmental concerns: All applicators must carefully read and understand the "Environmental Hazards" section of the product label and follow special precautions and measure to minimize harmful effects. If any questions arise regarding special precautions or measures, these shall be brought to the Pesticide Stewardship Working group. Additional precautions are outlined below, given raised concerns over honey bees and pollinators, fish and aquatic organisms, and birds.

    - Honey bees and pollinators- Applications of pesticides must be conducted in a manner that minimizes exposure to honey bees and pollinators. Scouting for pollinators will be done prior to applications. Where possible, buffer zones will be used between areas of pesticide application and areas where pollinators forage.

      Honey bees and other pollinators are at highest risk of pesticide poisoning when bee-toxic pesticides are applied to blooming vegetation. To protect bees and other pollinators, bee-toxic pesticides will not be applied on or near blooming vegetation; or bee-toxic pesticides will only be applied to blooming vegetation at night, once bees are done foraging for the day.

      When bee-toxic pesticides are used on blooming vegetation, additional residual toxicity safeguards will be followed. Specifically, bee-toxic pesticides with extended residual toxicity (ERT) exceeding 8 hours will not be used. Those with an ERT between 4-8 hours will be applied between the late evening and midnight and those with an ERT of less than 4 hours will be applied once the sun goes down such that the ERT period is over prior to sunrise. Bee-toxic pesticides with ERT will not be applied on nights when dew is forecast.

      Weather conditions, and how they impact honey bee and pollinator foraging, will be considered prior to all applications.

      The least hazardous formulations will be used in areas where bees are present and every effort will be made to prevent drift.

- Fish and Aquatic Organisms- Pesticides can enter the water through runoff, soil erosion, leaching, drift, and direct contamination. Pesticides can directly and indirectly lead to fish kills through acute poisoning and dissolved oxygen depletion. Additionally, there are pesticides that are classified as highly toxic to fish. To minimize impacts on fish and other aquatic organisms, applications of pesticides must be conducted in a manner that protects water quality.

  Pesticides that are less toxic to fish and other aquatic organisms will be used over those that are more toxic where possible.

  Buffer zones between aquatic sites and treatment areas will meet or exceed maximum distance recommended by the product label.

  Environmental conditions will be considered prior to any and all applications. Applications will not be performed during wet, windy weather to reduce drift and runoff potential. Applications will be made when wind speeds are below 10 mph.

  Decomposing aquatic vegetation reduces oxygen levels in waterways and can lead to fish kills if levels become too low. To prevent this, only ½ or less of an aquatic site will be treated at one time to allow fish to move to untreated areas where oxygen is typically higher. Additionally, herbicides will be applied in early spring when weeds are smaller, water temperatures are lower, and dissolved oxygen levels are higher.

  Pesticide storage facilities and any areas where mixing and loading may occur will be located away from any water body.

- Birds- Birds as well as other wildlife can be exposed to pesticides through ingestion of granules, baits, or treated seeds and also direct exposure to sprays. Indirect exposure and death can occur from consumption of contaminated food (crops and/or prey) and contaminated water. There are some pesticides that are highly toxic to birds. To minimize impacts on birds and other wildlife, applications will be conducted in a manner that reduces exposure.

  Pesticides that are less toxic to birds and wildlife will be used over those that are more toxic, where possible.

  If birds and wildlife is present in the application area, precaution will be used regarding the placement of baits. Additionally, baits will be recovered in a timely manner to reduce potential for birds and wildlife to confuse these with food.

– Pesticide applications in or near water:

  - Use the IPM Protocol in 4.ii to minimize pesticide applications with special consideration to methods that reduce need for and utilize least toxic options.

  - Consider non-chemical means of control when and where practical and effective for aquatic plant management activities.

  - Comply with regulations and follow BMPs involving pest management and pesticide application [e.g. NPDES, etc.].

- Roadside vegetation management: Consider non-chemical means of control when and where practical and effective.

- Contractual management of county building landscapes: The environmental landscape management requirements are as stated in the grounds maintenance contract.

- Building construction: The construction, renovation or expansion of any county building shall require:

    - Appropriate design to exclude pests such as rats, birds, etc. Use design and construction techniques that prevent future infestations of rodents, birds, bats, insects and other creatures that can move into a structure causing structural, health or comfort problems. This exclusion process will include sealing all penetrations into a structure including mesh wire over vents, closing abandoned plumbing and roof drain pipe, caulking windows, doors and utility penetrations and any other openings that will allow entry to unwanted insects and animals. In situations where an open vehicle bay or work area is attached to a controlled interior space, all attempts should be made to isolate the two.

- Wood Destroying Organisms (WDO's): There are various wood-destroying organisms that are problematic for Florida including termites (subterranean, drywood, arboreal), beetles, and wood-decay fungi. The preferred IPM strategy is: Subterranean termite prevention by avoiding wood-to-ground contact, elimination of moisture (i.e., leaks, areas where water can collect), avoiding planting landscape within 1-2 feet of buildings, and utilizing termite baits, borate wood treatments, and soil termiticides where needed. Registered baits, borates, and liquid termiticides are effective against subterranean termites. The state of Florida is concerned with re-infesting wood-destroying beetles that fall into the categories of powderpost beetles (i.e., true powderpost (Lyctid), deathwatch group (Anobiid), false powderpost (Bostrichid)), and old house borers. A preferred IPM strategy is: 1) Ensure wood used during building construction is kiln-dried, 2) after building, eliminate conditions that encourage moisture, 3) seal wood (i.e., painting, varnish). Treatments include borates on unsealed or painted surfaces. Borates prevent development of re-infesting beetles. Other products are available to spot-treat infestations. The humidity in Florida is high enough to sustain wood-day fungi such as “Poria” (water-conducting fungi) and cubical brown rot. Borates can help with wood-decay fungi management. Water-conducting fungi should be physically cut from structural elements. FDACS defines live wood-decay fungi as mycelium with fruiting bodies and wood moisture >30%. Wood-decay fungi should not be confused with surface mold. Building maintenance shall include:

    - Ensuring that the building envelope is sealed: properly fitted door thresholds and sweeps, windows fitted, screens in good repair, sealants applied where needed.

    - Proper housekeeping and storage to avoid attracting pests.

    - Indoor use of least toxic alternatives only, including traps, bait stations, gels, dusts or other approved pesticides to address pest problems that arise.

    - Indoor pest management will not include chemical spray applications.

11. Updates:

This document is to be considered a "living" document and along with its companion document the ‘Martin County Integrated Pest Management Program’ are subject to change and will be revised as advances are made in the mitigation and changes in the target pest and or situations arise.