

NATURAL RESOURCES CONSERVATION SERVICE  
CONSERVATION PRACTICE STANDARD

**INTEGRATED PEST MANAGEMENT (IPM)**

(Acre)  
Code 595



Mechanical Weed Cultivation

**DEFINITION**

A site-specific combination of pest prevention, pest avoidance, pest monitoring, and pest suppression strategies.

**PURPOSE**

1. Prevent or mitigate off-site pesticide risks to water quality from leaching, solution runoff, and absorbed runoff losses.
2. Prevent or mitigate off-site pesticide risks to soil, water, air, plants, animals, and humans from drift and volatilization losses.
3. Prevent or mitigate on-site pesticide risks to pollinators and other beneficial species through direct contact.
4. Prevent or mitigate cultural, mechanical, and biological pest suppression risks to soil, water, air, plants, animals, and humans.

**CONDITIONS WHERE PRACTICE APPLIES**

On all landuses where pests will be managed.

**CRITERIA**

**General Criteria Applicable To All Purposes**

Compliance with Federal, state, and local laws is required (e.g., Food Quality Protection Act (FQPA) of 1996; Federal Insecticide, Fungicide and Rodenticide Act (FIFRA); Chapter 5E-2 and 5E-9 Florida Administrative Code (F.A.C.); and Florida Statute (F.S.), Chapter 487.

Impact to cultural resources, wetlands and Federal and State protected species shall be evaluated and avoided or minimized to the extent practicable during planning, design and implementation of this conservation practice in accordance with established National and Florida NRCS policy, General Manual (GM) Title 420-Part 401; Title 450-Part 401, Title 190-Parts 410.22 and 410.26), and National Planning Procedures Handbook (NPPH) FL Supplements to Parts 600.1 and 600.6, National Cultural Resources Procedures Handbook (NCRPH), and the National Environmental Compliance Handbook (NECH).

Integrated Pest Management (IPM) is defined as an approach to pest control that combines biological, cultural, and other alternatives to chemical control with the judicious use of pesticides. The objective of IPM is to maintain pest levels below economically damaging levels while minimizing harmful effects of pest control on human health and environmental resources.

IPM strategies (Prevention, Avoidance, Monitoring, and Suppression or "PAMS") shall be employed to prevent or mitigate pest management risks for identified natural resource concerns.

A comprehensive IPM plan utilizing PAM's strategies will be developed in accordance with

this standard to document how specific pest management risks will be prevented or mitigated. The IPM plan must be crop and/or land use specific and adhere to applicable elements and guidelines accepted by the University of Florida, Institute of Food and Agricultural Sciences (UF-IFAS). IPM information can be found at UF – IFAS IPM web-site <http://ipm.ifas.ufl.edu/>

If a comprehensive IPM system is not feasible, utilize appropriate IPM techniques to adequately prevent or mitigate pest management risks for identified natural resource concerns.

**Additional Criteria To Prevent or Mitigate Off-site Pesticide Risks to Water Quality from Leaching, Solution Runoff, and Adsorbed Runoff Losses**

For identified water quality concerns related to pesticide leaching, solution runoff, and adsorbed runoff, the current version of the USDA-NRCS WIN-PST program will be used to evaluate potential risks to humans and/or fish, as appropriate, for each pesticide to be used.

The minimum level of mitigation required for each resource concern is based on the final risk ratings in the “WIN-PST Soil/Pesticide Interaction Hazards Ratings” Table below:

WIN-PST Identified Hazard Rating	Minimum Mitigation Index Score Level Needed
Low or Very Low	None Needed
Intermediate	20
High	40
Extra High	60

Use [Agronomy Technical Note 5](#) - Pest Management in the Conservation Planning Process – Table II to determine if planned conservation practices provide adequate

mitigation. If they do not, use Agronomy Technical Note 5 – Table I to apply appropriate IPM techniques with this practice.

**For State and Federally Listed T+E Species:**

Windows Pesticide Screening Tool (WIN-PST) results MUST be less than “Intermediate” when the planning area is within USFWS designated Gulf Sturgeon Critical Habitat and the NW and NC Florida Listed Mussel Habitat. Refer to the list of Hydrologic Unit Areas (HUA) in the FOTG, Section II(D)2(a)11(ii) and apply the corresponding HUA Map Layer (“7mussels\_a\_fl###.lyr” in the “ENDANGERED\_HABITAT” geodata folder) in the Customer Service Toolkit.

When the practice is implemented in **South and Central Florida** habitats and WIN-PST result is higher or equal to “Intermediate” use the following minimization measures:

- Apply chemicals directly to target pest/invasive species. Spot treatment techniques suggested include “hack and squirt”, “basal bark” and direct foliar spray.
- Follow label instructions for chemical drying times, do not apply chemical too close to a rain event.

**Additional Criteria to Prevent or Mitigate Off-site Pesticide Risks to Soil, Water, Air, Plants, Animals, and Humans from Drift and Volatilization Losses**

For identified natural resource concerns related to pesticide drift, use Agronomy Technical Note 5 – Table II and [595 job sheet](#) to determine if planned conservation practices provide adequate mitigation. If they do not, use [Agronomy Technical Note 5](#) – Table I and [595 job sheet](#) to apply appropriate IPM techniques with this practice. The minimum level of mitigation required for drift is an index score of 20.

For Volatile Organic Compound (VOC) emission concerns, apply at least one IPM mitigation technique from the Pesticide Volatilization section of [Agronomy Technical Note 5](#). One

example of a mitigation technique is to use Precision Application and there are several examples in the Pesticide Volatilization section.

**Additional Criteria To Prevent or Mitigate On-site Pesticide Risks to Pollinators and Other Beneficial Species through Direct Contact**

For direct contact pesticide risks to pollinators and other beneficial species in the application area, apply at least two IPM mitigation techniques from the Pesticide Direct Contact section of [Agronomy Technical Note 5](#) and [Agronomy Tech Note 9](#) – Mitigating Potential Negative Impacts of Pesticides on Pollinators Using Integrated Pest Management and Other Conservation Practices.

**Additional Criteria to Prevent or Mitigate Cultural, Mechanical, and Biological Pest Suppression Risks to Soil, Water, Air, Plants, and Animals**

For identified natural resource concerns related to cultural, mechanical, and biological pest suppression, (e.g. air quality concerns with burning for weed control or soil erosion concerns with tillage for weed control), natural resource concerns shall be addressed to FOTG quality criteria levels.

**CONSIDERATIONS**

IPM strategies that keep pest populations below economically damaging levels and minimize pest resistance should be utilized, because they also help prevent unnecessary pest management risks to natural resources and humans.

For noxious weed and invasive species control, the minimum level of pest suppression necessary to meet natural resource objectives should be used, however, for the eradication of invasive species, the acceptable pest threshold may be zero. See Florida NRCS Conservation Practice Standards [Herbaceous Weed Control, Code 315](#), and [Brush Management, Code 314](#) for further guidance.

IPM Prevention, Avoidance, Monitoring, and Suppression (PAMS) techniques include:

- Prevention - Activities such as cleaning equipment and gear when leaving an infested area, using pest-free seeds and transplants, and irrigation scheduling to limit situations that are conducive to disease development.
- Avoidance - Activities such as maintaining healthy and diverse plant communities, using pest resistant varieties, crop rotation, and refuge management.
- Monitoring - Activities such as pest scouting, degree-day modeling, and weather forecasting to help target suppression strategies and avoid routine preventative treatments.
- Suppression – Activities such as judicious use of cultural, mechanical, biological and chemical control methods that reduce or eliminate a pest population or its impacts while minimizing risks to non-target organisms.

IPM guidelines from the UF-IFAS may be supplemented with information from appropriately certified professionals.

When providing technical assistance to organic producers, the IPM approach to managing pests should be consistent with the USDA – Agricultural Marketing Service National Organic Program standard which includes:

- A diverse crop rotation that reduces habitat for major pests and increases habitat for natural enemies.
- Use of “farmscaping” principles to create borders of beneficial species habitat.
- Farming techniques to improve soil quality.
- Planting of locally adapted, pest resistant crop cultivars.

Adequate plant nutrients and soil moisture, including favorable pH and soil quality, can reduce plant stress, improve plant vigor and

increase the plant's overall ability to tolerate pests.

On irrigated land, irrigation water management should be designed to avoid conditions conducive to disease development and minimize offsite contaminant movement. See Florida NRCS Conservation Practice Standard [Irrigation Water Management, Code 449](#), for further guidance.

Producers should be reminded that they are responsible for following all pesticide label instructions and complying with all applicable Federal, state, and local regulations, including those that protect Threatened and Endangered Species.

#### Enhancement Considerations

1. A more intensive level of IPM focused primarily on prevention and avoidance strategies can further minimize pest management risks to natural resources and humans.
2. Precision pesticide application techniques in an IPM system can further minimize pesticide risks to natural resources and humans. An example of such precision application is seeing eye technology on applicators in citrus. See [Agronomy Technical Note 1 – Precision Agriculture: NRCS Support for Emerging Technologies](#) and [595 Supplement for Precision Agriculture](#).

#### **PLANS AND SPECIFICATIONS**

The IPM plan shall be prepared in accordance with the criteria of this standard and shall describe the requirements for applying the practice to achieve its intended purpose.

The IPM plan shall include at a minimum:

1. Plan map and soil map of site/affected area, if applicable (use conservation plan maps if available).
2. Location of sensitive resources and setbacks, if applicable (use conservation plan maps if available).

3. Interpretation of the environmental risk analysis. Note: all pesticide label requirements and federal, state, and local regulations must be followed for all pesticide applications.
4. Identification of appropriate mitigation techniques. See [Agronomy Technical Note 5 – Table I](#) and [595 job sheet](#) for pesticide risk mitigation management techniques.
5. A list of pest prevention and avoidance strategies that will be implemented, if applicable.
6. A scouting plan and threshold levels for each pest, if applicable.
7. Other monitoring plans, if applicable, such as weather monitoring to indicate when pesticide application for prevention is warranted.
8. A list of accepted pest thresholds or methods to determine thresholds that warrant treatment, if applicable.

Note: Items 5, 6, 7, and 8 are required to document a comprehensive IPM system, but they may not be applicable when only a limited number of mitigation techniques are sufficient to address identified natural resource concerns.

#### **Record Keeping.**

The following records, where applicable, shall be maintained by the producer:

1. Monitoring or scouting results including the date, pest population/degree of infestation, and the crop or plant community condition.
2. When and where each pest suppression technique was implemented.
3. When and where special IPM techniques were implemented to mitigate site-specific risks (e.g., soil incorporation of a pesticide to reduce its surface runoff to a nearby stream).

## OPERATION AND MAINTENANCE

The IPM plan shall include appropriate operation and maintenance (O&M) items for the client.

These may include:

- The plan shall be reviewed and updated periodically in order to incorporate new IPM strategies, respond to cropping system and pest complex changes, and avoid the development of pest resistance.
- Maintain mitigation techniques identified in the plan in order to ensure continued effectiveness.
- Calibrate application equipment according to Extension and/or manufacturer recommendations before each season of use and with each major chemical change.
- Maintain records of pest management for at least two years. When non-Restricted Use Pesticides (RUP) are used pesticide application records need to include at a minimum:
  - The brand or product name
  - The EPA registration number
  - The total amount applied
  - The month, day, and year
  - The location of the application
  - The crop, commodity, stored product, or site
  - The size of area treated
  - The name of the applicator

When RUP are used Florida Pesticide Law requires applicators to be certified and more detailed information needs to be kept. See the IFAS publication [Pesticide Record Keeping](#) (PI-20) for specific requirements. Information on the RUP needs to be recorded within two working days of the application and maintained for two years from the application date.

## REFERENCES

[Univ. Florida, IFAS. Applying Pesticides Correctly \(SM - 1\)](#)

[Univ. Florida, IFAS. Agricultural and Related Pest Control Applicator License Classifications under the Florida Department of Agriculture and Consumer Services \(PI-59\)](#)

National Information System for the Regional IPM Centers – IPM Elements and Guidelines (<http://www.ipmcenters.org/ipmelements/index.cfm>)

USDA-AMS National Organic Program, National List of Allowed and Prohibited Substances. (<http://www.ams.usda.gov/AMSV1.0/ams.fetchTemplateData.do?template=TemplateN&navID=NationalListLinkNOPNationalOrganicProgramHome&rightNav1=NationalListLinkNOPNationalOrganicProgramHome&topNav=&leftNav=NationalOrganicProgram&page=NOPNationalList&resultType=&acct=nopgeninfo>)

USDA-NRCS GM-190-404 Pest Management Policy (<http://directives.sc.egov.usda.gov/RollupViewer.aspx?hid=17015>)

Using Farming Bill Programs for Pollinator Conservation. ([http://plants.usda.gov/pollinators/Using\\_Farm\\_Bill\\_Programs\\_for\\_Pollinator\\_Conservation.pdf](http://plants.usda.gov/pollinators/Using_Farm_Bill_Programs_for_Pollinator_Conservation.pdf))