

**NATURAL RESOURCES CONSERVATION SERVICE**  
**CONSERVATION PRACTICE STANDARD**  
**INTEGRATED PEST MANAGEMENT (IPM)**

(Ac.)

**CODE 595**

**DEFINITION**

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

**PURPOSE**

- Prevent or mitigate pesticide risks to water quality through leaching, solution runoff and adsorbed runoff.
- Prevent or mitigate pesticide risks to soil, water, air, plants, animals and humans through drift and volatilization.
- Prevent or mitigate pesticide risks to pollinators and other beneficial species through direct contact.
- Prevent or mitigate cultural, mechanical and biological pest suppression risks to soil, water, air, plants, animals and humans.

**CONDITIONS WHERE PRACTICE APPLIES**

On all lands where pests will be managed.

**CRITERIA**

**General Criteria Applicable to All Purposes**

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 local Land Grant University or Extension.

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 Pesticide Risks to Water Quality through Leaching, Solution Runoff and Adsorbed Runoff**

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 Hazard Ratings” Table below: ( <https://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/technical/ecoscience/invasive/?cid=stelprdb1044461> )

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

Use Agronomy Technical Note 3, 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 3 - Table I to apply appropriate IPM techniques with this practice.

**Additional Criteria to Prevent or Mitigate Pesticide Risks to Soil, Water, Air, Plants, Animals and Humans through Drift and Volatilization**

For identified natural resource concerns related to pesticide drift, use Agronomy Technical Note 3, 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 3 - Table I 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 3 - Pest Management in the Conservation Planning Process.

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

For direct contact pesticide risks to pollinators and other beneficial species, apply at least two IPM mitigation techniques from the Pesticide Direct Contact section of Agronomy Technical Note 3 - Pest Management in the Conservation Planning Process.

**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.

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 and
- Suppression – Activities such as the 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 Cornell University or Extension 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.

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.

### **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 3 - Table I 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).

Note: Applicability will depend on the level of IPM adoption and mitigation requirements.

## **OPERATION AND MAINTENANCE**

The IPM plan shall include appropriate operation and maintenance items for the client. These may include:

- Review and update the plan 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.
- Develop a safety plan for individuals exposed to chemicals, including telephone numbers and addresses of emergency treatment centers for individuals exposed to chemicals and the telephone number for the nearest poison control center. The National Pesticide Information Center (NPIC) telephone number in Corvallis, Oregon may also be given for non-emergency information:

**1-800-858-7384**

Monday - Friday

6:30 a.m. to 4:30 p.m. Pacific Time Additionally,

the NPIC supports a website:

<http://npic.orst.edu>

For advice and assistance with emergency spills that involve agrichemicals, the local emergency telephone number should be provided. The national 24-hour CHEMTREC telephone number may also be given:

**1-800-424-9300**

CHEMTREC also supports a website:

[www.chemtrek.org](http://www.chemtrek.org)

- Follow label requirements for mixing/loading setbacks from wells, intermittent streams and rivers, natural or impounded ponds and lakes, or reservoirs. (State or local regulations may be more restrictive).
- Post signs according to label directions and/or Federal, State, and local laws around sites that have been treated. Follow restricted entry intervals.
- Dispose of pesticides and pesticide containers in accordance with label directions and adhere to Federal, State, and local regulations.
- Read and follow label directions and maintain appropriate Material Safety Data Sheets (MSDS).
- Calibrate application equipment according to Extension and/or manufacturer recommendations before each seasonal use and with each major chemical change.
- Replace worn nozzle tips, cracked hoses, and faulty gauges.
- Maintain records of pest management activities, such as scouting records, calibration rates, etc., for at minimum of three years.

## REFERENCES

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)

Pesticide Mitigation Effectiveness Guide. Section I, USDA-NRCS Field Office Technical Guide. Syracuse, NY, 2003.

Pesticide Mitigation Scorecard NY NRCS FOTG – Section 4– Conservation practices – Pest management folder

[http://efotg.nrcs.usda.gov/efotg\\_locator.aspx?map=NY](http://efotg.nrcs.usda.gov/efotg_locator.aspx?map=NY)

Resource Management System Guide Sheets. Section III, USDA-NRCS Field Office Technical Guide. Syracuse, NY. 1998.

National Agricultural Pesticide Risk Analysis (NAPRA). USDA-NRCS. Amherst, MA. 1995.

Win-PST 3 User's Manual NY NRCS FOTG – Section 4 – Conservation practices – Pest management folder

[http://efotg.nrcs.usda.gov/efotg\\_locator.aspx?map=NY](http://efotg.nrcs.usda.gov/efotg_locator.aspx?map=NY)

Cornell Guide for Integrated Field Crop Management. Cornell Cooperative Extension. Ithaca, NY. Updated yearly. <https://nysipm.cornell.edu/>

Cornell Pest Management Guidelines for Commercial Tree Fruit Production. Cornell Cooperative Extension. Ithaca, NY. Updated yearly.

Cornell Pest Management Guidelines for Berry Crops. Cornell Cooperative Extension. Ithaca, NY. Updated yearly.

New York and Pennsylvania Pest Management Recommendations for Grapes. Cornell Cooperative Extension, Ithaca, NY. Updated yearly

Cornell Guide for the Integrated Management of Greenhouse Florist Crops. Cornell Cooperative Extension, Ithaca, NY. Updated yearly.

Cornell Pest Management Guide for Commercial Production and Maintenance of Trees and Shrubs. Cornell Cooperative Extension. Ithaca, NY. Updated yearly.

Cornell Cooperative Extension Pest Management Guidelines for Vegetables. Cornell Cooperative Extension. Ithaca, NY. Updated yearly.

Core 4. Conservation Tillage Information Center. West Lafayette, IN. 1998

Pesticides Management Program. Division of Solid & Hazardous Materials, New York State Department of Environmental Conservation. Albany, NY. Updated periodically.

New York State IPM Program, Elements of IPM. Cornell Cooperative Extension, Ithaca, NY. Updated periodically