

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

(Acres)

CODE 595

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 adsorbed 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 lands where pests will be managed.

For the control of invasive species refer to Indiana (IN) Field Office Technical Guide (FOTG) Standards (314) Brush Management and/or (315) Herbaceous Weed Control, as applicable.

CRITERIA

General Criteria Applicable to All Purposes

All methods of pesticide use and pest management must comply with Federal, Indiana, and local regulations, including those that protect Threatened and Endangered Species.

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.

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

A comprehensive IPM plan utilizing PAMS 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 Purdue University or other Land Grant University or Extension, as applicable.

IPM 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 the judicious use of cultural, mechanical, biological and chemical control methods

Conservation practice standards are reviewed periodically, and updated if needed. To obtain the current version of this standard, contact the Natural Resources Conservation Service State Office, or download it from the Field Office Technical Guide for your State.

that reduce or eliminate a pest population or its impacts while minimizing risks to non-target organisms.

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.

When providing technical assistance to organic producers, the IPM approach to managing pests will 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.

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 (such as but not limited to: human drinking water supply or aquatic habitat) 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:

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 2 to determine if planned

conservation practices provide adequate mitigation. If they do not, use Agronomy Technical Note 5 - Table 1 to apply appropriate IPM techniques with this practice.

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 (such as but not limited to: surface water, nearby sensitive crops, organically grown crops, wildlife including pollinators and beneficial insects or human bystanders) related to pesticide drift use Agronomy Technical Note 5, Pest Management in the Conservation Planning Process – Table 2 to determine if planned conservation practices provide adequate mitigation. If they do not, use Agronomy Technical Note 5 - Table 1 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 - Pest Management in the Conservation Planning Process.

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 - 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 will 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. Refer to IN FOTG Standard (314) Brush Management and/or IN FOTG Standard (315) Herbaceous Weed Control, as applicable.

IPM guidelines from Purdue University, other Land Grant Universities or Extension may be supplemented with information from appropriately certified professionals.

On irrigated land, irrigation water management should be designed to avoid conditions conducive to disease development and minimize offsite contaminant movement.

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

The IPM plan will 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, including Win-PST analyses.
- 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 1 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, will 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 will 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.
- 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. Pesticide application records will be in accordance with USDA Agricultural Marketing Service's Pesticide Recording Keeping Program and site specific requirements.

REFERENCES

Listed below are references helpful in planning this practice:

[National Information System for the Regional IPM Centers – IPM Elements and Guidelines](#)

[USDA-AMS National Organic Program, National List of Allowed and Prohibited Substances](#)

[USDA-NRCS GM-190-404 Pest Management Policy \(March 2009\)](#)

[Using Farming Bill Programs for Pollinator Conservation \(2008\)](#)

Indiana Pesticide Management Plan, Office of Indiana State Chemist (OISC)

Purdue Pesticide Programs publications including:

- [The Impact of Water Quality on Pesticide Performance, 2009 \(PPP-86\)](#) (pdf 7M)
- [Pesticides and Container Management, 2006 \(PPP-21\)](#) (pdf 976K)
- [Pesticides and Their Proper Storage, 2001 \(PPP-26\)](#) (pdf 20K)
- [Pesticides and Water Quality Principles, Policies and Programs, 2001 \(PPP-35\)](#) (pdf 3805K)
- [Managing Farm Chemicals, 2000 \(PPP-50\)](#) (pdf 136K)

Purdue University Cooperative Extension Service publications (some may be available on PUCES website)

- Corn & Soybean Field Guide (ID-179)
- [Field Crops IPM](#)
- [Pest & Crop Newsletter](#)
- [Corn Insect Control Recommendations, 2008 \(E-219-W\)](#)
- [Soybean Insect Control Recommendations, 2008 \(E-77-W\)](#)
- [Crop Production Recordkeeping Folder \(PPP-18\)](#) (pdf 136K)
- Annual Field Records (pocket guide) (PPP-19)