

**Integrated Pest Management (Acres)
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.

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.

Clients shall be instructed to pay special attention to all environmental hazards and site-specific application criteria listed on pesticide labels and contained in Extension and Crop Consultant recommendations.

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 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 Michigan Agronomy Technical Note #61, Pest Management in the Conservation Planning Process - Table 2 to determine if planned conservation practices provide adequate mitigation. If they do not, use Michigan Agronomy Technical Note #61 - 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 related to pesticide drift, use Michigan Agronomy Technical Note #61, Pest Management in the Conservation Planning Process – Table 2 to determine if planned conservation practices provide adequate mitigation. If they do not, use Michigan Agronomy Technical Note #61 - 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 Michigan Agronomy Technical Note #61 - Pest Management in the Conservation Planning Process.

When pesticide off-target drift is anticipated due to the nature of the application, a Drift Management Plan shall be utilized by the applicator to minimize the occurrence and adverse effects of off-target drift. Refer to the GAAMPs for Pesticide Utilization and Pest Control for more information on Drift Management Plans.

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 Pollinator Direct Contact section of Michigan Agronomy Technical Note #61 - 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 guidelines from Michigan State University or MSU 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.

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 Michigan Agronomy Technical Note #61 - 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, 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.
- 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 three years. Pesticide application records shall be in accordance with USDA Agricultural Marketing Service's Pesticide Recording Keeping Program and site specific requirements. In order to comply with federal record keeping regulations and the GAAMPs for Pesticide Utilization and Pest Control, the following information must be documented:
 - Month/Date/Year of Application
 - Time of Application
 - Pesticide Brand/Product Name
 - Pesticide Formulation
 - EPA Registration Number
 - Active Ingredient(s)
 - Restricted-entry Interval (REI)

- Rate per Acre or Unit
- Crop, Commodity, Stored Product or Site that Received the Application
- Total Amount of Pesticide Applied
- Size of Area Treated
- Applicator's Name
- Applicator's Certification Number
- Target Pest
- Location of the Application
- Method of Application

REFERENCES

National Information System for the Regional IPM Centers – IPM Elements and Guidelines:

<http://www.ipmcenters.org/ipmelements/index.cfm>

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

Michigan State University Integrated Pest Management Resources

<http://www.ipm.msu.edu/>

Generally Accepted Agricultural and Management Practices for Pesticide Utilization and Pest Control. Michigan Commission of Agriculture, Lansing, MI
http://www.michigan.gov/documents/MDA_Pesticide_GAAMP_129701_7.pdf

USDA-AMS National Organic Program
<http://www.ams.usda.gov/AMSV1.0/ams.fetchTemplateData.do?template=TemplateA&navID=NationalOrganicProgram&leftNav=NationalOrganicProgram&page=NOPNationalOrganicProgramHome&acct=AMSPW>

NRCS publication, “Using Farm Bill Programs for Pollinator Conservation”

http://plants.usda.gov/pollinators/Using_Farm_Bill_Programs_For_Pollinator_Conservation.pdf

Oregon State University Extension publication, “How to Reduce Bee Poisoning from Pesticides”

<http://extension.oregonstate.edu/catalog/pdf/pnw/pnw591.pdf>

Sustainable Agriculture Research and Education (SARE) Handbook 11, “Managing Alternative Pollinators”

<http://www.sare.org/publications/pollinators/pollinators.pdf>