

PEST MANAGEMENT



Natural Resources Conservation Service



Michigan



Definition

Pest management is utilizing environmentally-sensitive prevention, avoidance, monitoring, and suppression strategies to manage weeds, insects, diseases, animals, and other organisms that directly or indirectly cause damage or annoyance.

Purposes

Pest management is applied as part of a Conservation System to:

- Enhance the quantity and quality of agricultural commodities.
- Minimize the negative impacts of pest control on soil resources, water resources, air resources, plant resources, animal resources, and/or humans.

Pest Management Includes:

- Environmental risk analysis of pest management alternatives.

- Mitigation alternatives to minimize environmental risks. Adoption of Integrated Pest Management (IPM).
- Implementation of a pest management component of an overall conservation plan.

Benefits

The goals of a Pest Management system are to:

- Minimize environmental risks.
- Improve food, water, soil, and air quality.
- Integrate all aspects of pest management within the agricultural production system.

Conservation System

Pest management is a component of a Conservation System. It should be used in conjunction with conservation practices such as a filter strip, conservation crop rotation, irrigation water management, and/or nutrient management on a site-specific basis to address both natural resource concerns and the landowner's objectives.

General Criteria

- Methods of pest management must comply with Federal, State, and local regulations, including management plans for invasive pest species, noxious weeds, and disease vectors.
- Utilize Integrated Pest Management (IPM) practices that strive to balance economics, efficacy, and environmental risks.
- Implement mitigation techniques planned to address the environmental risks of pest management activities. Mitigation techniques include conservation practices like a filter strip or conservation crop rotation, and management techniques like application method and timing. Examples of mitigation techniques are given at the end of the attached Pest Management Worksheet.
- All methods of pest management must be integrated with other components of the conservation plan.
- Pay special attention to all warning statements listed in the Environmental Hazards section of the pesticide label, and any other site-specific application criteria listed on pesticide labels and contained in MSU Extension and Crop Consultant recommendations.

Operation, Maintenance & Safety

- Review and update the plan periodically in order to incorporate new IPM technology, 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 for emergency treatment centers and the telephone number for the nearest poison control center. **For human exposure questions, the local center is:**

Name: _____
Location: _____
Phone: _____

The National Pesticide Information Center (NPIC) telephone number in Corvallis, Oregon for non-emergency information is:

1-800-858-7378
Monday - Friday
6:30 a.m. to 4:30 p.m. Pacific Time

The Michigan Department of Agriculture has a toll-free, 24-hour hotline available for reporting agrichemical spills as part of their Spill Response Program. The MDA Agriculture Pollution Emergency (APE) Hotline number is:

1-800-405-0101

The national 24-hour CHEMTREC[®] telephone number for emergency assistance is:

1-800-424-9300

- Follow label requirements for mixing/loading setbacks from wells, intermittent streams and rivers, natural or impounded ponds and lakes, or reservoirs. Refer to MI Practice Standard 702, Agrichemical Containment Facility for more information on setback requirements for mixing/loading and storage facilities.
- 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 for at least three years and preferably five years. In order to comply with federal record keeping requirements and the Michigan GAAMPs for Pesticide Utilization and Pest Control, the following information must be documented:
 - Month/Day and 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
 - Carrier Volume per Acre
 - 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

Additional Specifications and Notes: _____

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Pest Management Worksheet

The pest management worksheet can be used to fulfill the minimum documentation requirements of the Pest Management Standard 595. Other documentation includes the grower pesticide application records, and pest management recommendations developed by MSU Extension or by private consultants. Results of resource assessment tools such as soil erosion calculations, Win-PST, Orchard-A-Syst, or other tools should be attached to this worksheet. Conservation practices included in the mitigation techniques should be referenced in the Conservation Plan as well as in this worksheet.

Producer _____; Date _____; Consultant _____

Tract and Field(s) _____; Soils _____

Is there karst topography or other site conditions that contribute to risk to groundwater? (specify) _____

Crop Sequence/Rotation _____ (Circle current crop)

Assessment Completed For: _____ Win-PST; _____ Erosion (RUSLE); _____ Other (specify tool(s))* _____

** Other tools include Orchard-A-Syst, Field-A-Syst, or other risk assessment tools.*

Sketch a map showing the field location(s), acreage, and location of sensitive resource concerns. Sensitive areas include: streams (permanent or intermittent); drains; wetlands, or other surface waters; location of known karst sinkholes, wells, or other ground water risk features; windbreaks, grassed waterway, and other existing buffer practices; location of forests, wetlands, food plots, or other off-site sensitive wildlife habitat; residences, schools, gardens, livestock, organic farms, notification registry addresses, and other sensitive areas in a potential off-target drift area. Note the prevailing wind direction and/or possible direction of off-target drift, where applicable. **NOTE:** Aerial photos in the Conservation Plan can be used in lieu of this sketch. Reference the plan maps to this conservation sheet.

Note: Not to Scale

Pest Management Worksheet (continued)

Are Fields Monitored Regularly for Pests?

Weeds Yes No By Whom? _____ How Often? _____

Insects Yes No By Whom? _____ How Often? _____

Diseases Yes No By Whom? _____ How Often? _____

Do You Have Any Pesticide Applicator Licenses? ___ Yes ___ No Describe: _____

Do You Calibrate Your Sprayer? ___ Yes ___ No When? _____

How are Pesticides Handled on Your Farm? (briefly describe)

Storage: _____

Mixing and Loading: _____

Transportation to Farm: _____

Application: _____

Disposal (excess chemical and containers): _____

Notes

Current Pest Concerns

List known or likely pests by field and/or crop. The identified pest concerns can then form the basis for discussions on the pest management strategies for each pest, and IPM practices and/or strategies available.

Pests	Crop(s) and/or Fields		
	Level of Concern (H-High M-Moderate L-Low)		
Weeds:			
<i>Grasses</i>			
<i>Broadleaves</i>			
<i>Perennials</i>			
Insects:			
<i>Soil-dwelling</i>			
<i>Internal plant feeders (borers, miners)</i>			
<i>External plant feeders (on leaves, stem, fruit)</i>			
Diseases:			
<i>Soil-borne</i>			
<i>Foliar</i>			

Current Pest Control Practices

Crop _____

Weed Control Practices

Cultural and Biological Practices

Cultivation? ____ Yes ____ No Crop Rotation? ____ Yes ____ No

Biological control agents (i.e., weed-feeding organisms)? ____ Yes ____ No

Other? _____

Herbicides Used

Application Information

Trade Name/Formulation	Common Name	RUP? (Y/N)	Rate	Timing	Method*

* Specify method of application: band, broadcast, spot spray, aerial applied, etc.

RUP - Restricted Use Pesticide

Notes:

Insect Control Practices

Cultural and Biological Practices

Crop Rotation? ____ Yes ____ No Biological Control agents used? (specify) _____

Cultivation? ____ Yes ____ No Resistant Variety Selection? ____ Yes ____ No

Other? _____

Insect Control Practices (continued)

Insecticides Used

Application Information

Trade Name/Formulation	Common Name	RUP? (Y/N)	Rate	Timing	Method*

* Specify method of application: band, broadcast, spot spray, aerial applied, etc.
 RUP - Restricted Use Pesticide

Notes _____

Disease Control Practices

Cultural and Biological Practices:

Crop Rotation? ____ Yes ____ No

Resistant Variety Selection? ____ Yes ____ No

Cultivation? ____ Yes ____ No

Other? _____

Chemical Control

Application Information

Trade Name/Formulation	Common Name	RUP? (Y/N)	Rate	Timing	Method*

* Specify application method: band, broadcast, spot spray, aerial applied, etc.
 RUP - Restricted Use Pesticide

Notes _____

Environmental Hazards - Label Restrictions of Planned Pesticides

Review the Precautionary Statements found in the Environmental Hazards section of the labels of the planned pesticides. Note information concerning the impact of surface water contamination on fish, aquatic organisms, and wildlife. An example of a statement may include, "The pesticide is toxic to fish and aquatic invertebrates." Note label restrictions needed to mitigate entry into surface waters, such as, "Do not apply to turf sites that border lakes, ponds or streams," or "If the product is applied to highly erodible land, the 66-foot buffer or set-back from runoff points must be planted to a crop or seeded with grass or other suitable crop." Also note warning statements related to ground water risk: "This chemical is known to leach through soil into ground water under certain conditions as a result of agricultural use. Use of this chemical in areas where soil is permeable, particularly where the water table is shallow, may result in ground water contamination."

The following label restrictions must be implemented, as required by state and Federal law:

To protect yourself, others, and the environment, always read the label before applying any pesticide.

Risk Assessment – Results and Interpretation:

A change in Pest Management procedures is recommended because of one or more of the following Risk Assessment Results:

1. _____ Erosion potential has been determined by using the NRCS erosion calculations for water and wind erosion (see attached calculations). A high potential for current or proposed pesticides to move off-site with soil particles has been found.
2. _____ Pesticide movement potential has been determined by using the Windows-based Pesticide Screening Tool (Win-PST) (see attached report). The risk of toxicity to _____ aquatic life and/or _____ human health has been found to be high or very high for one or more of the pesticides currently used.
3. _____ The risk of off-site movement of pesticides has been determined using _____ Worksheet results show a very high to high risk of pesticide impact on surface and/or ground water. (Attach pest management sections of Orchard-A-Syst, Field-A-Syst, or other tool used to document risks identified.)

Notes: _____

Planned Mitigation Techniques

Mitigation Techniques to be Implemented Include One or More of the Following:

(NOTE CONSERVATION PRACTICES ON PLAN MAP AND IN CONSERVATION PLAN)

_____ Substituting a pesticide with a lower risk rating _____ Changing pesticide formulation or using adjuvants

_____ Using the low end of label rates

_____ Timing applications to reduce potential for movement in runoff, leaching, or drift

_____ Using partial treatments: _____ band application; _____ spot treatments; _____ directed application

_____ Using: _____ companion crops; _____ cover crops; _____ crop residues (ex: mulching, residue management)

_____ Adjusting: _____ planting date; _____ plant populations; _____ row width

_____ Changing crop rotation _____ Using resistant varieties

_____ Using crop cultivation/shallow tillage operations to control weed seedlings or to suppress soil-borne insects and pathogens

_____ Installing additional erosion and runoff control practices to minimize off-site movement of applied pesticides

_____ Establishing vegetative buffer areas and setback zones that separate treated lands from sensitive areas

_____ Adopting biological control practices: _____ pest monitoring (traps, scouting); _____ use of a biological agent**

** Examples of biological agents include biological pesticides (BT, ladybugs, pyrethrins), trap crops, beneficial enemies, etc. Refer to MSUE bulletins for more information on biological pest control methods.

Other (specify) _____

DISCLAIMER: *The USDA-NRCS policy prevents its employees from making pesticide recommendations. Therefore, the information in this conservation sheet (595) is only a guideline to meet the requirements of the Pest Management Standard (595). The participant is required by law to follow all pesticide labels. The use of a pesticide in a manner not consistent with the label can lead to injury of crops, humans, animals, and the environment, and can lead to civil fines and/or condemnation of the crop. Contact MSU Extension for pesticide recommendations.*

DRIFT MANAGEMENT PLAN

Our establishment uses a written drift management plan to minimize the occurrence of off-target drift. All pesticide applications conducted at this firm are made in accordance with this plan. Application records serve as the record for use of this plan. However, if drift does occur, the applicator will record those incidents on the back of this form. Records shall be maintained for at least one year for any general-use pesticide application and for at least three years for any restricted-use pesticide application. Recognizing that pesticide applications shall be made in a manner that prevents off-target direct discharges of pesticides, and in keeping with certain requirements of Rule 10 of Regulation 637, our drift management plan includes the following:

- A. Procedures used when applying pesticides.
- B. Procedures used when off-target drift is anticipated due to the nature of the application.
- C. Procedures used when off-target drift is NOT anticipated, but does occur.
- D. Review record sheet.
- E. Site record sheet.

Note that for the purposes of this plan, off-target drift does not include off-target movement of a pesticide by means of erosion, volatilization, or windblown soil particles after the application of a pesticide unless the pesticide label makes specific statements pertaining to drift related to these means. Our pesticide applicator should recognize that operating under a drift management plan does not exclude an applicator from complying with appropriate federal or state statutes and regulations. However, the Michigan Department of Agriculture will consider the presence and proper use of a drift management plan as a factor when determining appropriate enforcement action should enforcement action be deemed appropriate.

A. To minimize the incidence of off-target drift, the following procedures and practices shall be utilized when applying pesticides:

- 1. Use of the largest spray droplets that provide effective coverage of the target site. This can be achieved by use of appropriate nozzles and the lowest pressure possible that still provides effective coverage.
- 2. Use of drift control additives when appropriate.
- 3. Release of the pesticide as close as possible to the target.
- 4. Use of the lowest effective rates of application.
- 5. Determine the wind speed, using a hand-held wind meter when necessary. The following guidelines are suggested:
 - a. Zero to 10 mph – Generally okay to spray. Use normal precautions.
 - b. 10 to 15 mph – Use extra caution when spraying. Consider use of drop spreader with granular material for turf sites.
 - c. 15 mph or more – Recommended not to spray.
 - d. If area being treated is sheltered from the wind, then wind speed can be worked with depending on area involved.
- 6. Wind blocks may be used to contain or deflect spray or to block wind from the target site.
- 7. Target sites located in close proximity to the property line may need to be omitted or only partially sprayed to avoid off-target drift.

B. When pesticide drift is anticipated due to the nature of the application, the applicator shall:

- 1. Attempt to secure prior informed consent of residents in the affected area(s). Oral consent is acceptable, but written consent is preferred.
- 2. If contact with the affected residents is not possible or if consent to drift is not obtained, the applicator shall employ all effective methods for drift control.
- 3. Any questionable areas of sensitive sites should be discussed with management before proceeding with the spray. Do not spray when property boundaries are not clearly defined or are questionable.
- 4. If, after all precautions are taken, off-target drift still occurs, appropriate notification (including signs) shall be made to notify the property owner of the occurrence.

C. Procedures to use when off-target drift is NOT anticipated, but does occur.

- 1. When off-target drift is NOT anticipated, but does occur, the applicator shall attempt to notify the affected residents verbally. If residents cannot be provided verbal notice, the applicator shall post the appropriate signs before leaving the site of application.

DRIFT MANAGEMENT PLAN (continued)

2. Firm management shall be notified of the occurrence of off-target drift by the applicator immediately.
3. Maintain a record at the office of all sites where this drift management plan was implemented. Records shall be maintained for a period of one year for general use pesticide products and three years for restricted use products and shall be provided to the MDA upon request.

D. Each pesticide applicator shall review this drift management plan annually. The applicator(s) shall sign below to indicate that they have reviewed the plan.

Name

Date

E. When an incident of drift occurs, the applicator shall make a record of the site where the plan was implemented. Use additional sheets as necessary.

	<u>Date</u>	<u>Location</u>	<u>Notes</u>
1.			
2.			
3.			
4.			

NOTES