

USDA - National Resource & Conservation Service

PA Integrated Pest Management Plan 2007 - 595

Definition of Practice:

Integrated pest management (IPM) improves the quantity and quality of the crops being grown, while minimizing the negative impacts of the pest control on humans and soil, water, air, plant, and animal resources. IPM strives to balance economics, efficacy and environmental risk. Attempts to control one pest species without regard for the entire ecosystem can disrupt checks and balances between crops, other plants, pests, beneficial organisms and the physical environment.. Information about IPM in agriculture can be obtained at the Pennsylvania IPM website (<http://paipm.cas.psu.edu/22.htm>) as well as from [Penn State Cooperative Extension](#).

Purpose

IPM practices are applied as part of a conservation system to mitigate negative impacts of pest management on soil resources, water resources, air resources, plant resources, animal resources, and/or humans and to protect and enhance quantity and quality of agricultural outputs. These practices are applicable on land where any agronomic crop is grown and where insect pests will be managed using ecologically based IPM practices such as biological control, reduced risk IPM, and pheromone mating disruption with the goal of reducing pesticide use.

Environmental/Natural Resource Benefits of IPM

1. IPM provides multiple benefits to the quality of air, water, and soil as well as improving wildlife habitat/biodiversity and human health.
2. IPM improves air, soil and water quality through reduced pesticide and fertilizer inputs.
3. Alternatives to soil fumigation such as green manures and alternatives to herbicides such as mulching both increase soil respiration and ecosystem functioning to improve soil quality.
4. Improvements in wildlife habitat, biological pest control and alternative pollinators through cover crops, windbreaks, and wild flower strips that also help prevent soil erosion.
5. Reductions in air pollution and offsite pesticide contamination are attained by using improved “smart sprayer” agri-technology for more targeted pesticide applications.

6. Substitution of non-pesticide control (e.g. mating disruption dispensers or increased biological control) for pesticide inputs.
7. Substitution of environmentally safer, low rate, reduced risk pesticides in place of broad spectrum neurotoxin insecticides.
8. Improved safety to pesticide applicators and workers should be considered.
9. IPM is a critical component of multidisciplinary environmental stewardship (i.e. sustainable agriculture) when combined with other farming practices.
10. IPM leads to greater biodiversity of plants and animals which in turn contribute to increased ecosystem functioning and agro-ecosystems which are more stable.

BASIC REQUIREMENTS

General

The pest management component of a conservation plan shall be developed and implemented in compliance with all applicable Federal, Tribal, State, and/or local regulations. NRCS shall not develop pesticide recommendations or change label instructions or recommended specifications for pesticide application. Pennsylvania State University will provide the technical expertise for implementation and verification of the use of IPM. All methods of pest management must comply with Federal, State, and local regulations, including management plans for invasive pest species, noxious weeds and diseases and for the conservation of protected and endangered species.

Compliance with the Food Quality Protection Act (FQPA); Federal Insecticide, Fungicide & Rodenticide Act (FIFRA); Worker Protection Standard (WPS); and Interim Endangered Species Protection Program (H7506C) are required for chemical pest control. Pay special attention to all environmental hazards and site-specific application criteria listed on pesticide labels and contained in Extension recommendations. Please note the location of any sensitive resources for exclusion of pest management activities when resource degradation is likely.

Integrated Pest Management

Your goal should always be to maintain a healthy crop and preferentially use preventative tactics such as pest resistant crops, crop rotations, cover crops, planting date adjustments, harvest date adjustments, compatible tillage practices among others. If remedial tactics are necessary,

use tactics such as such as scouting, mating disruption and biological control to reduce pesticide use. If pesticides are needed to meet your quantity and quality objectives for your crops, select the least toxic products and use according to Penn State recommendations. IPM strives to balance economics, efficacy and environmental risk. Attempts to control one pest species without regard for the entire ecosystem can disrupt checks and balances between crops, other plants, pests, beneficial organisms and the physical environment. See the *Pennsylvania Tree Fruit Production Guide* or the *Mid-Atlantic Orchard Monitoring Guide* for more detailed discussions on pest monitoring techniques, phenological development and sample timings, and pesticide efficacy on pests and selectivity towards beneficials. You will find excellent resources with additional information on IPM at the PSU FREC web site: <http://frec.cas.psu.edu/>, in the monthly newsletter, *Fruit Times* (<http://fruittimes.cas.psu.edu/Default.html>), and at the PA IPM website (<http://paipm.cas.psu.edu/65.htm>).

Considerations:

1. Consider that adequate plant nutrients and soil moisture, including favorable pH and soil conditions, should be available to reduce plant stress, improve plant vigor and increase the plant's overall ability to tolerate pests.
2. Consider that there may be areas not suitable for pesticide application because of drift, run off or leaching, or that some crops in some situations may not be suitable for biological control. While highly desirable, biological control may not be feasible in some minor crops because of a lack of effective selective pesticides or because such programs may not have been developed yet for minor crops.
3. Consider that on irrigated land, irrigation water management should be designed to minimize pest management environmental risk (i.e. surface water runoff & leaching of pesticides).
4. Spraying for control of noxious weeds or unwanted woody vegetation in early succession wildlife habitat areas will be done on a "spot" basis to protect forbs and legumes that benefit native pollinators and other wildlife. Negative impacts to native plant communities should be avoided when possible.
5. Pay special attention to pesticide label instructions that minimize negative impacts to humans (re-entry intervals, pre-harvest spray intervals and the use of Personal Protection Equipment).
6. Follow label instructions and university recommendations that limit the impact of pesticides on non-target organisms (including pollinators, biological control agents, bird and fish toxicity, and endangered species).
7. Pay special attention to weed control and pesticide label instructions directed at preventing misdirected pest management control measures that negatively impact non-target plants.

8. Pesticide applications should be made when possible under the appropriate climatic conditions, crop stage, soil moisture, pH, and organic matter in order to protect plant health and improve efficacy.

2007 NRCS IPM Components for Pennsylvania

Pennsylvania has chosen to develop a menu of IPM choices which allows growers to participate in multiple levels of IPM over time. It also allows NRCS to give higher priority to those IPM components with the greatest environmental benefit. This strategy also enables tracking of IPM components through grower adoption to give an estimate of the environmental benefit of each component. Detailed specifications of each IPM practice and the requirement for following them have been developed by Penn State University for NRCS and are available on the PA IPM website (<http://paipm.cas.psu.edu/65.htm>). Growers who receive contracts from NRCS for IPM conservation practices will sign a copy of the specification for each IPM practice they are implementing. This will be part of their conservation contract with NRCS and then they will receive a copy for their own records and for referral as to the specifics of implementing those practices. As the IPM specifications are being continually updated, the grower is only responsible for following the version of the specification at the time they were given a contract.

Instructions for NRCS staff:

1. Check off the box of each IPM component in the contract that the grower is committing to.
2. Have the grower sign the detailed specification for each IPM component to acknowledge he has been informed of the requirements of that specification.
3. Give the grower a copy of each specification and maps with IPM areas identified for his records.

The following is a list of the IPM components available for various crops in 2007.

Basic IPM – Level 1

Field Crop Scouting

Crop	# Acres	Tract #s	Field #s	\$ Committed
Corn				
Soybeans				

Grain				
Alfalfa				
Other (specify)				

Specialty Crop Scouting

Crop	# Acres	Tract #s	Field #s	\$ Committed
Tree Fruit				
Grapes				
Fresh Market Sweet Corn				
Christmas Trees				
Tree Fruit				
Other (specify)				

Ecologically Based IPM Practices

Precision Agriculture– Level 2

Crop	# Acres	Tract #s	Field #s	\$ Committed
Tree Fruit				
Grapes				
Fresh Market Sweet Corn				
Christmas Trees				
Tree Fruit				
Other (specify)				

Biological Control– Level 3

Crop	# Acres	Tract #s	Field #s	\$ Committed
Apple				
Grapes				
Other (Specify)				

One Species Mating Disruption– Level 2

Crop	# Acres	Tract #s	Field #s	\$ Committed
Apple/Pear				
Peach/Nectarine				
Grapes				

Other (Specify)				
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Two Species Mating Disruption– Level 2

Crop	# Acres	Tract #s	Field #s	\$ Committed
Apple/Pear				
Peach/Nectarine				
Other (Specify)				

Reduced Risk IPM– Level 3

Crop	# Acres	Tract #s	Field #s	\$ Committed
Apple/Pear				
Peach/Nectarine				
Other (Specify)				

Intensive Disease & Insect Monitoring/Consulting– Level 3

Crop	# Acres	Tract #s	Field #s	\$ Committed
Apple/Pear				
Peach/Nectarine				
Other (Specify)				

IPM Plan Operation and Maintenance

The producer/client is responsible for the operation and maintenance of the IPM plan.

Core IPM Activities Required of all NRCS IPM Program Participants (other requirements for specific IPM options are detailed in the IPM specifications attached):

- 1) Annual pruning (winter/spring) in fresh fruit blocks; Biennial pruning acceptable, but not desirable, for processing only blocks.
- 2) Tree prunings removed and burned, or chopped.
- 3) Removal of dead fruit trees in IPM blocks.
- 4) Orchard sprayer accurately calibrated at beginning and middle of season.
- 5) Attend IPM training sessions, or designate a representative to attend who will be conducting monitoring.
- 6) Maintain pesticide and orchard management records and make available to NRCS/PSU to include date, material, rate of application, and other management practices.
- 7) Conduct leaf and soil analyses in year one, and apply fertilizer, if needed in year two based on results of analyses.
- 8) Purchase (if do not own) and use for IPM decision-making a copy of the PSU guide making recommendations for your crops (i.e. PSU Fruit Monitoring Guide).

Instructions for NRCS staff:

1. **Make sure two copies of all planned specifications are signed by the grower – one for his records and one for NRCS.**
- 2.

Design Approval:

Pest management strategies planned meet the specifications attached and were developed by a professional pest management specialist or other qualified individuals in consultation with PSU.

PEST MANAGEMENT SPECIALIST PROVIDING ASSISTANCE:

Design Planned By: _____ Date: _____

Job Title: _____

This job sheet will be reviewed and/or revised on the following schedule:

Client’s Acknowledgement Statement: *Look at these and see what we should keep*

The client acknowledges that:

- a. They have received a copy of the pest management plan and understand the contents and requirements.
- b. It is the responsibility of the client to obtain all necessary permits and/or rights, and to comply with all ordinances and laws pertaining to the application of this practice.
- c. They agree to attend IPM training sessions by PSU extension and are encouraged to attend training for NRCS specific IPM practices when developed.
- d. They are required to obtain updated copy of the Penn State University Cooperative Extension Tree Fruit Monitoring Guide.
- e. They agree to follow the Core IPM Activities required of all growers with NRCS IPM contracts and any additional records specified in the specific IPM programs in which they have enrolled will be made available to NRCS/PSU at the end of the growing season..

Accepted by: _____ (grower).

Date: _____

NRCS Certification:

I have completed a review of the IPM plan developed by NRCS & Penn State University and find it appropriate.

Certified by: _____ Date: _____

District Conservationist