Natural Resources Conservation Service

CONSERVATION PRACTICE STANDARD

INTEGRATED PEST MANAGEMENT

CODE 595

(ac)

DEFINITION

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

PURPOSE

This practice is used to accomplish one or more of the following purposes–

- Prevent or mitigate off-site pesticide risks to water quality from leaching, solution runoff and adsorbed runoff losses
- Prevent or mitigate off-site pesticide risks to soil, water, air, plants, animals and humans from drift and volatilization
- Prevent or mitigate on-site 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 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 the University of Nebraska-Lincoln (UNL) or UNL 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.

IPM activities shall comply with all applicable Federal, State and local laws and regulations.

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 UNL Weedsoft Program for herbicides can be substituted for leach loss potential when solution runoff or adsorbed runoff is not a concern on the site.

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 or more

Use Nebraska Agronomy Technical Note 110, Pest Management in the Conservation Planning Process - Table II to determine if planned conservation practices provide adequate mitigation. If they do not, use Nebraska Agronomy Technical Note 110 - Table I to apply appropriate IPM techniques with this practice.

Pesticide applications shall be made according to label instructions and University of Nebraska recommendations. Applications made through irrigation systems will follow state and local laws and regulations including Chemigation requirements administered by the Natural Resources District (NRDs).

Additional Criteria to Prevent or Mitigate Off-site Pesticide Risks to Soil, Water, Air, Plants, Animals and Humans from Drift and Volatilization

For identified natural resource concerns related to pesticide drift, use Nebraska Agronomy Technical Note 110, Pest Management in the Conservation Planning Process – Table II to determine if planned conservation practices provide adequate mitigation. If they do not, use Nebraska Agronomy Technical Note 110 - 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 Nebraska Agronomy Technical Note 110 - 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, apply at least two IPM mitigation techniques from the Pesticide Direct Contact section of Nebraska Agronomy Technical Note 110 - 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.

- 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 the University of Nebraska-Lincoln (UNL) or UNL 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 (Code 449) 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.

The pesticide user must be fully trained and must obtain pesticide applicator certification to apply restricted use pesticide in Nebraska. Information on obtaining this permit may be obtained from the Nebraska Department of Agriculture or UNL Extension.

Refer to Nebraska Agronomy Technical Note 110, Pest Management in the Conservation Planning Process for additional pesticide use operation and maintenance practices.

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.

Specifications for this practice shall be recorded using approved specification sheets, job sheets, narrative statements in the conservation plan, or other acceptable documentation.

The IPM plan shall include at a minimum:

1. Statement of Purpose/Goals/Objectives of implementing integrated pest management.
2. Plan map and soil map of site/affected area, if applicable (use conservation plan maps if available).
3. Location of sensitive resources and setbacks, if applicable (use conservation plan maps if available).
4. Interpretation of the environmental risk analysis. Provide a copy of USDA-NRCS WIN-PST soil/pesticide interaction hazard report for each chemical pesticide planned/applied and each major (10% and greater) soil type in the pest management area. Note: all pesticide label requirements and federal, state, and local regulations must be followed for all pesticide applications.
5. Identification of appropriate mitigation techniques (minimum level of mitigation is based on the WIN-PST Soil/Pesticide Interaction Hazard Rating). See Nebraska Agronomy Technical Note 110 - Table I for pesticide risk mitigation management techniques.
6. A list of pest prevention and avoidance strategies that will be implemented, if applicable.
7. A scouting plan and threshold levels for each pest, if applicable.
8. Other monitoring plans, if applicable, such as weather monitoring to indicate when pesticide application for prevention is warranted.
9. A list of accepted pest thresholds or methods to determine thresholds that warrant treatment, if applicable.
10. Record keeping method.

Note: Items 6, 7, 8 and 9 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).
4. All pesticide application records shall be kept in accordance with the USDA Agricultural Marketing Service's Pesticide Record Keeping Program and Nebraska Department of Agriculture requirements.

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.
- Calibrate application equipment according to UNL 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.

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

NDA Pesticide Applicator Certification and Licensing (http://www.agr.ne.gov/division/bpi/pes/cert.htm) – includes information on obtaining commercial or private license as well as record keeping requirements.

UNL Pesticide Safety Education Program (http://pested.unl.edu/) – includes information on training available for preparing to take the exams or recertifying a license.

Nebraska Pesticide Sensitive Crop Locater (http://www.agr.ne.gove/division/bpi/pes/psci.htm) – an on-line locator for pesticide sensitive commercial crops.

Cropwatch (http://cropwatch.unl.edu/) – web into and e-newsletter – a central response for crop production and pest management.

Pesticide Label List for Specific Use Requirements: Water Quality (http://www.agr.ne.gov/divsion/bpi/pes/labels.htm) – intended to be used as an aid in identifying specific types of restrictions found on pesticide labels.

Pesticide and Endangered Species:

- NDA Endangered Species Protection (http://www.agr.ne.gov/division/bpi/pes/es gen.htm)
- Endanger Species maps and description on e-FOTG (http://efotg.sc.egov.usda.gov//references/public/NE/Subsection_II_TOC_ENDANGE RED_AND THREATED_SPECIES_LISTS.pdf).

NDEQ Water Quality Standards, Water Quality Reports, and TMDLs for pesticides (http://www.deq.state.ne.us/SurfaceW.nsf/Pages/TMDL).