

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

(Ac.)

CODE 595

DEFINITION

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

PURPOSE

1. Prevent or mitigate offsite pesticide risks to water quality from leaching, solution runoff, and adsorbed runoff losses.
2. Prevent or mitigate offsite pesticide risks to soil, water, air, plants, animals and humans from drift and volatilization losses.
3. Prevent or mitigate onsite 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 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 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.

The Natural Resources Conservation Service (NRCS) employees, in South Dakota (SD), will not make field specific pesticide recommendations.

Persons who review or approve the pest management component of a conservation plan shall be certified through a certification program acceptable to the NRCS as described in General Manual, Title 180, Part 409, and SD supplement SD409, Exhibit 1.

Preliminary Field Risk Assessment (on all fields)

Planners will identify fields that are susceptible to surface or groundwater contamination. Water Quality Risk Assessment maps will be developed identifying shallow aquifers and setbacks associated with surface water resources on all fields with the exception of the following two situations:

- ◆ Water Quality Risk Assessment maps are not required for pasture or grazed range. Runoff or leaching risk ("R" – Runoff and "L" - Leaching) designations may be referenced in the legend and posted directly on conservation plan maps for pasture and grazed range;
- ◆ Windbreak plantings less than 10 acres in a block do not require Water Quality Risk Assessment maps or a

Conservation practice standards are reviewed periodically, and updated if needed. To obtain the current version of this standard, contact your Natural Resources Conservation Service [State Office](#), or visit the [electronic Field Office Technical Guide](#).

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risk evaluation with screening tools such as the Windows Pesticide Screening Tool (WIN-PST).

surface water contamination, the field will be evaluated with the WIN-PST.

A preliminary evaluation using the following Steps 1-3 will be made for each field to identify if the field poses a significant potential to contaminate an identified groundwater or surface water resource:

1. Fields located over shallow aquifers as defined in SD Codified Law 34A-3A-24 will be considered highly vulnerable for pesticide leaching. The Web Soil Survey (WSS) will be used to identify the leaching risk for soil map units in each county in SD. Saturated Hydraulic Conductivity (Ksat) is a soil property (ease of soil pores to transmit water) that will be used to indicate leaching risk. Soils map units that have a Ksat value of 10 micrometers/sec (µm/sec) or greater, and are on slopes less than 6 percent, would be considered to have a "High Leaching Risk." The WSS is located at: <http://websoilsurvey.nrcs.usda.gov/ap/p/>
 If pest management plans are developed in conjunction with nutrient management plans on permitted facilities in SD, the SD Department of Environment and Natural Resources (DENR) will be contacted for identification of application fields located over shallow aquifers.
2. For surface water protection, areas of fields within 100 feet of a noncropped wetland, lake, river, stream, or a conveyance to these waters should be considered to have a potential to contribute contaminants to surface waters. A conveyance may be defined as a ditch, tile inlet, intermittent stream, waterway, or unvegetated channel.
3. If Steps 1 and 2 are negative, then no further water quality screening is necessary. If, however, a significant groundwater resource is identified or a field has a potential to contribute to

Additional Criteria to Prevent or Mitigate Offsite 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 national Agronomy Technical Note 4, Pest Management in the Conservation Planning Process - Table II, to determine if planned conservation practices provide adequate mitigation. If they do not, use national Agronomy Technical Note 4 - Table I, to apply appropriate IPM techniques with this practice.

Pesticide handling, application, and disposal shall be conducted in a manner consistent with state law and product label directions. Anyone who handles, applies, or disposes of a pesticide is required to perform these activities in accordance with label instructions and/or state law; including but not limited to the precautionary statements regarding water resources to limit leaching and runoff losses of pesticide residues.

Anyone handling or applying pesticides must comply with requirements of operational area containment as stated on the product label and state rules administered by the SD

Department of Agriculture (SDDA):
Operational Area Containment (ARSD §
12:56:17).

State rules require operational containment if:

More than 1,500 lbs. of active ingredient is mixed in the same location during one calendar year or; either concentrate or diluted pesticides are cleaned, washed, or rinsed from containers or from application, handling, storage, or transportation equipment for over 30 days accumulated during a calendar year ;
or

If pesticides are handled within:

- 150 feet of a lake, stream, streambed, or wetland; or
- 150 feet of a well; or
- 200 feet of populated buildings, either commercial or residential premises, excluding the owner or operator's residential or commercial buildings; or
- 500 feet of a well used as a public water supply.

Additional Criteria to Prevent or Mitigate Offsite 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 national Agronomy Technical Note 4, Pest Management in the Conservation Planning Process – Table II, to determine if planned conservation practices provide adequate mitigation. If they do not, use national Agronomy Technical Note 4 - 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 national Agronomy Technical Note 4 - Pest Management in the Conservation Planning Process.

Pesticide applications shall be made according to local, state, and federal regulations, label directions, including

precautionary statements, and University recommendations to minimize negative impacts to humans including those directed at:

Re-entry intervals (REI's) for fields treated with pesticides.

Proper storage, handling, and disposal of pesticides, pesticide residues, and pesticide containers.

Proper protection to avoid back-siphoning into water wells from sprayer tanks and irrigation systems.

Use Personal Protective Equipment (PPE) as prescribed by the pesticide product label during mixing/handling, application, and re-entry. Refer to the product label for the required PPE and appropriate use of the equipment before handling any pesticide product. Individuals involved in handling and application of pesticides should periodically inspect PPE for integrity and ample supply to insure personal safety.

Private or commercial pesticide applicators, as defined in SDCL 38-21-14, are required to be certified and licensed by the SDDA.

All aspects of the Pesticide Worker Protection Standard must be observed. Details regarding the use the Pesticide Worker Protection Standard are available from:

United States Environmental Protection Agency (EPA)

Pesticides: Health & Safety

<http://www.epa.gov/pesticides/health/index.htm>

SDDA - Division of Agricultural services

http://www.state.sd.us/doa/das/Comp/worker_protection.htm

Phone: 1-800-228-5254

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 national Agronomy Technical Note 4 - Pest Management, in the Conservation Planning Process.

Clients shall adhere to pesticide label directions, including precautionary statements and University recommendations regarding grazing, haying, and feeding restrictions and other items necessary to minimize negative impacts to wildlife and domestic animals. Clients shall adhere to pesticide label directions including precautionary statements and University recommendations to avoid negative impacts on non-target insects including label statements directed at pollinating insects. If a pesticide carries a hazard statement indicating that the product may be toxic to bees, follow label instructions and take appropriate precautions. Information regarding the location of registered commercial apiaries within the area of the proposed site of application is available from the SDDA at http://sdda.sd.gov/Ag_Services/Agronomy_Services_Programs/Apiary_Program/apiary_map_s.htm or by calling 1-800-228-5254.

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 local Land Grant University or 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; and
- 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.

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.

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 national Agronomy Technical Note 4 - Table I, 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 two years. Pesticide application records shall be in accordance with USDA Agricultural Marketing Service's Pesticide Recording Keeping Program and site-specific requirements.

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