PEST MANAGEMENT

(Acre)
Code 595

Natural Resources Conservation Service
Conservation Practice Standard

I. Definition

Utilizing environmentally sensitive prevention, avoidance, monitoring, and suppression strategies to manage weeds, insects, diseases, animals, and other organisms (including invasive and non-invasive species) that directly or indirectly cause damage or annoyance.

II. Purposes

This practice is applied as a component of a Conservation Management System (CMS) or Resource Management System (RMS) to support the following purposes:

- Achieve management objectives for quantity and quality of agricultural commodity, livestock, forage, and aquaculture production, timber production, wildlife habitat management, plant community restoration/management or recreational use.

- Minimize negative environmental or health impacts of pest control activities on soil resources, water resources, air resources, plant resources, animal resources and/or humans as identified in the conservation planning resource assessment.

III. Conditions Where Practice Applies

Wherever pests will be managed on farmsteads, cropland, pastureland, forestland, wildlife land, or recreational land.

Areas where storage, mixing loading, and/or handling of pesticides occurs.

IV. Federal, State and Local Laws

Users of this standard should be aware of potentially applicable federal, state and local laws, rules, regulations or permit requirements governing Pest Management. This standard does not contain the text of federal, state or local laws.

V. Criteria

A. General Criteria Applicable to All Purposes

1. Where pest management is applied, the practice shall be a component of a conservation plan that includes a resource inventory utilizing the process outlined in the Natural Resources Conservation Service (NRCS) National Planning Procedures Handbook (NPPH). All methods of pest management must be integrated with other components of the conservation plan.

   The conservation planning resource assessment shall identify the presence of any known threatened or endangered plant or animal species. The anticipated impacts of pest management alternatives on the threatened and endangered species shall be documented in the conservation planning resource assessment and alternative strategies shall be developed to protect the identified threatened and endangered species as required by the appropriate additional criteria.

2. An appropriate set of *mitigation techniques* must be planned and implemented to reduce any identified environmental risk(s) related to pest management. The mitigation techniques shall address the resource concerns identified in the conservation planning resource assessment. The Quality Criteria in Wisconsin NRCS Electronic Field Office Technical Guide (e-FOTG) Section III establish the Resource Management System (RMS) planning goal for Pest Management.

3. All methods of pest management must comply with federal and state regulations, including management plans for invasive pest species, noxious weeds, and disease vectors. Compliance with the Federal Insecticide, Fungicide, and Rodenticide Act

[1] Words in the standard that are shown in italics are described in X. Definitions. The words are italicized the first time they are used in the text.

(FIFRA); and Worker Protection Standard (WPS) is required.

All methods of pesticide use must comply with the current product label and Wisconsin Administrative Code Chapters ATCP 29, Pesticide Use and Control; ATCP 30, Pesticide Product Restrictions; and ATCP 31, Groundwater Protection Program, administered by the Wisconsin Department of Agriculture, Trade and Consumer Protection (DATCP).

Pesticide applications to the waters of the state shall be made according to Wisconsin Administrative Code Chapter NR-107, Aquatic Plant Management, administered by the Wisconsin Department of Natural Resources (DNR).

All incidents of accidental release of pesticides that may cause adverse environmental effects shall be reported to the Wisconsin DNR Spill Hotline at 800-943-0003.

4. Assure that the pesticide applicator knows the exact location of the area to be treated and has evaluated the potential hazard of spray drift or subsequent pesticide movement to surrounding areas.

5. All recommendations for specific pest control strategies will be in accordance with current agronomic principles determined by a *professional agronomist.*

6. Restricted use pesticides shall be applied by a *certified pesticide applicator.*

B. Criteria to Protect Quantity and Quality of Commodities

1. *Integrated Pest Management* (IPM) shall be offered as a pest management planning alternative whenever an IPM protcol applicable to the crop or target pest is available.

   The IPM program shall utilize appropriate field scouting (including nematode assays and disease identification where appropriate) to estimate pest density, stage of pest in it's life cycle, and shall calculate the *economic treatment threshold* to determine the need for pesticide use. Unnecessary and poorly timed pesticide applications shall be avoided.

2. *Organic production systems* developed utilizing this standard shall comply with the nationally developed standards for organically produced agricultural products as defined by the *USDA National Organic Program*.

C. Criteria to Protect Soil Resources

Soil erosion rates shall be maintained at or below the Tolerable Soil Loss Rate (T). Soil erosion rates shall be determined using the current version of the appropriate erosion prediction tools (Revised Universal Soil Loss Equation 2, Wind Erosion Equation) located in Section I of the Wisconsin NRCS e-FOTG. Soil erosion and *soil quality* will be managed using a combination of crop rotations, conservation practices and by management of the number, sequence, and timing of tillage operations.

D. Criteria to Protect Water Resources

1. The conservation planning resource assessment shall identify any known environmental risks that pest management activities pose to surface and groundwater resources.

   The NRCS *Windows Pesticide Screening Tool* (WIN-PST) shall be used to evaluate soil/pesticide interactions in Wisconsin and to estimate the relative risk for movement of pesticides beyond the crop root zone.

2. When an evaluation using WIN-PST and a conservation planning resource assessment determines that the pesticide selected for use has a significant potential to negatively impact water resources (e.g. ground water recharge area for a drinking water supply, or surface water drainage area of an *Outstanding or Exceptional Resource Water*), one of the following options must be implemented:

   a. An appropriate set of mitigation techniques must be put into place to address the risk(s) to water resoruces, and non-target aquatic organisms identified in the conservation planning resource assessment.

Implementation of one or more mitigation techniques is required for pesticide options with a WIN-PST Soil/Pesticide Hazard Risk Rating of 'Extra High,' 'High,' or 'Intermediate,' or

b. An alternative pest management strategy with a lower risk to water resources and non-target plant and animal species shall be developed.

Selection of mitigation techniques (D.2.a. above) shall be based on site-specific resource concerns and pesticide loss pathways. Refer to Wisconsin e-FOTG Section V (Conservation Practice Physical Effects) and Section III (Guidance Documents and Quality Criteria) for assistance in developing conservation alternatives.

3. Follow pesticide label restrictions regarding soil organic matter, soil pH, soil texture, depth to water table and application setback distances from intermittent or perennial streams or other nearby surface water bodies, wetlands, and sinkholes.

4. Locate all pesticide mixing, loading, storage, and supply areas (tanks) at least 100 feet away from any well or surface water body, and down slope of wells, unless mixing and loading is conducted over a spill containment surface. Wisconsin Administrative Code Chapter ATCP 29 requires a spill containment surface if greater than 1500 pounds of active ingredient are mixed and loaded at the same site during a calendar year.

5. Where sediment delivery to surface waters is identified as a conservation planning resource concern, the number, sequence, and timing of tillage operations shall be managed in conjunction with other sediment control strategies and practices to reduce sediment delivery to nearby surface waters.

E. Criteria to Protect Air Resources

1. Applicators shall follow pesticide labels regarding application during thermal inversion periods and weather conditions where turbulence from the wind and rising air currents may cause undesirable spray drift.

The Pest Management Plan shall identify circumstances where spray drift could violate the product label or cause off-site harm and shall identify strategies to prevent or minimize drift.

2. Applicators shall comply with pesticide label instructions for minimizing volatilization.

F. Criteria to Protect Plant Resources

Producers shall comply with pesticide label instructions relating to:

1. Preventing misdirected pest management control measures that negatively impact non-target plants including the crop being treated (e.g., cleaning pesticide residues from sprayers before changing herbicide treatment for another crop).

2. Applying pesticides during appropriate climatic conditions, crop stage, soil moisture, pH, and organic matter in order to protect plant health.

3. Maintaining rotational intervals to avoid injury to subsequent crops in the rotation.

4. Evaluating the potential for injury to non-target plants within and adjoining the treatment area. Modify the application technique or product used as needed where protection of non-target plants is necessary.

5. Implementation of specific management practices for *Genetically Modified Organism* (GMO) crops as required to minimize development of pest resistance to the beneficial characteristic of the GMO crop.

G. Criteria to Protect Animal Resources

1. Producers shall comply with pesticide label instructions intended to minimize the negative impacts of the product to domestic animals, wildlife, and aquatic organisms.

2. Pesticides shall not be stored in areas where animal feeds are present. Planters or application equipment shall not be parked where animals can readily access them.

3. The product label's pre-harvest interval for grazing or forage harvesting shall be followed.

H. Criteria to Protect Humans

1. Read and follow all label instructions, as well as state and federal regulations regarding the use of personal protective equipment, posting of treated areas, and field re-entry restrictions. Product label requirements for re-entry and personal protective equipment are found in the "Agricultural Use Restriction" section.

2. Follow product label for pre-harvest interval for fruit, vegetable, and field crops intended for human consumption.

3. Avoid unnecessary exposure to pesticides during mixing/handling and application by wearing protective clothing and equipment specified on the label. Follow label instructions in case of accidental exposure.

VI. Considerations

A. When a commodity specific IPM strategy is unavailable, use of the following general IPM principles should be considered:

1. Prevention, such as using pest-free seeds and transplants, cleaning tillage and harvesting equipment prior to moving to another field, etc.

2. Avoidance, such as using pest resistant varieties, crop rotation, trap crops, etc.

3. Monitoring, such as pest scouting, soil testing, heat unit accumulation, and weather forecasts, etc., to help target suppression strategies and avoid routine preventative pest control.

4. Suppression, such as use of cultural, biological, and chemical controls, that can reduce a pest population or impacts.

5. Follow current pesticide use precautions which consider methods of avoiding development of pesticide resistance and shifts in pest species.

6. Manage soil pH, plant nutrients, soil moisture, and soil conditions to reduce plant stress, improve plant vigor, and increase the plants overall ability to tolerate pests.

7. Manage irrigation water to avoid conditions conducive to disease development.

B. Producers shall be encouraged to pay special attention to pesticide label instructions for limiting pesticide residues in leachate and runoff that may negatively impact non-target plants, animals, water, fish and humans.

C. Spray drift management strategies may include avoidance of pesticide applications when wind or rising air currents are favorable for drift. Risk may also be reduced by using techniques to increase spray droplet size, using spray drift retardants, selecting an appropriate nozzle, reducing spray pressure, increasing spray volume, or by lowering the sprayer boom height.

D. As an essential component of both commodity specific IPM and IPM general principles, clients shall be encouraged to use the minimum level of pest control necessary to meet their objectives for commodity quantity and quality in order to minimize the potential for environmental risk and pesticide residues.

VII. Plans and Specifications

A. The pest management component of an approved conservation plan shall be prepared in accordance with the criteria of this standard and recorded in narrative statements in the conservation plan. See the NRCS National Planning Procedures Handbook for further guidance.

As a minimum, the pest management component of a conservation plan shall include:

1. Plan map and soil map of the managed site.

2. Location of identified sensitive species, groundwater and surface water risk areas, and setbacks if applicable.

3. Environmental risk analysis using approved tools and procedures for anticipated pest management recommendations by crop and pest.

4. Interpretation of the environmental risk analysis and identification of appropriate mitigation techniques.

B. The Pest Management Plan shall contain an initial detailed strategy based on prior years' crops and pest conditions. As a minimum, the plan shall identify the field where the pesticide application will occur, the crop planted (or to be planted), targeted pest, pesticide formulation and

carrier, application rate, and the method of application. The plan shall document the date and time of pesticide applications and any variations from the planned treatment.

C. Integrated Pest Management Plans shall contain documentation of the targeted pests, specific schedule for crop scouting by pest, and a preliminary strategy identifying pest treatment thresholds.

VIII. Operation and Maintenance

The owner/client is responsible for the proper implementation of this practice including operation and maintenance of all equipment. Operation and maintenance shall address the following:

A. Pest management plans shall be reviewed periodically to incorporate new IPM technology, respond to cropping system and pest complex changes, and avoid the development of pest resistance. Periodic reviews should be conducted when a change occurs in crop rotation or when new pesticides are labeled for use.

B. Maintain mitigation techniques identified in the plan in order to ensure continued effectiveness.

C. Develop a safety plan that includes telephone numbers and address for the nearest treatment center for individuals exposed to pesticides and a telephone number for the nearest poison control center. Check the product label for instructions. In the event a pesticide is swallowed, call the Poison Center of Wisconsin at 1-800-815-8855. The National Pesticide Telecommunications Network (NPTN) telephone number in Corvallis, Oregon, may also be contacted for non-emergency information at 1-800-424-7378, Monday – Friday 8:30 a.m. to 6:30 p.m. central time.

D. Prevent the contamination of water supplies during pesticide mixing by maintaining an air gap of twice the diameter of the hose or pipe being used, keeping the filler hose or pipe out of the spray tank at all times or by installing an anti-siphon device to prevent backflow. Only reduced pressure principle backflow preventers (RP valves) are allowable as an anti-siphon device for pesticide related use. Never leave a spray tank unattended during filling.

E. Pesticides used in chemigation shall be labeled for this method of application and all chemigation systems must be fitted with an anti-siphon device to prevent back flow. No chemigation system may draw water directly from a potable water supply. See Wisconsin Administrative Code Chapter ATCP 29.54, Chemigation, and the pesticide label for other chemigation system requirements.

F. Store pesticides according to label directions and as specified by state and federal regulations.

G. Post warning signs where required by label directions and state or federal law around fields which have been treated and observe restricted entry intervals.

H. Commercial pesticide applicators shall maintain appropriate pesticide labels and Material Safety Data Sheets (MSDS) for each pesticide used in the current year. Private applicators as a minimum shall have copies of the current pesticide label and have access to the MSDS through their pesticide supplier.

I. Applicator's equipment shall be calibrated by the owner before mixing and loading pesticides. Calibrate equipment at the beginning of each season, periodically during the season, and with each major pesticide change. Calibration should be checked regularly during the spray season because nozzle wear increases the application rate and can alter spray patterns.

J. Replace worn nozzle tips, cracked hoses, and faulty gauges.

K. Dispose of pesticide wastes and pesticide containers in accordance with label directions and state or federal regulations. Clean application equipment after each use and apply rinsate to an approved site according to label directions. Triple rinse pesticide containers as soon as they are empty and add rinsate to spray solution. The Wisconsin Fertilizer and Chemical Association (WFCA) sponsors annual collections for empty, triple rinsed containers. WFCA can be contacted at 608-249-4070. Never reuse pesticide containers for any purpose.

L. Dispose of unwanted pesticides along with their containers in accordance with label directions and state or federal regulations. Unwanted pesticides are collected at Agricultural Clean Sweeps sponsored by DATCP. For information on Ag Clean Sweep operation and funding, see Wisconsin Administrative Code Chapter ATCP 34 or the DATCP Agricultural Clean Sweep web site.

M. Maintain application records of restricted use pesticides for at least two years and at least three years for atrazine products. Records of applications made as a commercial applicator for-hire must also be maintained for at least two years. Pesticide application records shall be in accordance with Wisconsin Administrative Code Chapter ATCP 29 and 30.

IX. References

DATCP, Atrazine Prohibition Areas: http://datcp.state.wi.us/arm/agriculture/pest-fert/pesticides/atrazine/.

DATCP Agricultural Clean Sweep Program: http://www.datcp.state.wi.us/arm/agriculture/pest-fert/pesticides/clean-sweep/.

DATCP Endangered Species Program: http://datcp.state.wi.us/arm/environment/plants/endangered-species/index.html.

DNR Endangered Resources web site: http://www.dnr.state.wi.us/org/land/er/factsheets/etindex.htm for a list of sensitive species by county in Wisconsin.

State of Wisconsin Administrative Codes: http://www.legis.state.wi.us/rsb/code/codtoc.html.

DATCP, Wisconsin Administrative Code Chapter ATCP 29, Pesticide Use and Control.

DATCP, Wisconsin Administrative Code Chapter ATCP 30, Pesticide Product Restrictions.

DATCP, Wisconsin Administrative Code Chapter ATCP 31, Groundwater Protection Program.

DATCP, Wisconsin Administrative Code Chapter ATCP 34, Agricultural Clean Sweep.

DNR, Wisconsin Administrative Code Chapter NR-102.10 Outstanding Resource Waters.

DNR Wisconsin Administrative Code Chapter NR-102.11 Exceptional Resource Waters.

DNR, Wisconsin Administrative Code Chapter NR-107, Aquatic Plant Management.

University of Nebraska – Lincoln, Weed Management Decision Support System (WeedSOFT 2003) Version 8.0. http://weedsoft.unl.edu.

University of Wisconsin-Extension Bulletin A3276, Cranberry Pest Management in Wisconsin (Current Year): http://www1.uwex.edu/ces/pubs/pdf/A3276.PDF.

University of Wisconsin-Extension Bulletin A3646, Pest Management in Wisconsin Field Crops (Current Year): http://www1.uwex.edu/ces/pubs/pdf/A3646.PDF.

University of Wisconsin-Extension Bulletin A3422, Commercial Vegetable Production in Wisconsin (Current Year): http://www1.uwex.edu/ces/pubs/pdf/A3422.PDF.

University of Wisconsin-Extension Bulletin A3690, Protecting Wisconsin's Resources Through Integrated Weed Management, Jan. 1998: http://www1.uwex.edu/ces/pubs/pdf/A3690.PDF.

University of Wisconsin-Extension, Training Manual for the Private Pesticide Applicator, Pesticide Applicator Training Program: http://ipcm.wisc.edu/pat/training/pman.htm.

University of Wisconsin-Extension, Training Manual for the Commercial Pesticide Applicator, Pesticide Applicator Training Program: http://ipcm.wisc.edu./pat/training/cman1_1.htm.

USDA, Agricultural Marketing Service, National Organic Program: http://www.ams.usda.gov/nop/indexIE.htm.

USDA, NRCS National Planning Procedures Handbook, Amendment 4: http://policy.nrcs.usda.gov/scripts/lpsiis.dll/H/H_180_600.htm (5-1-2003).

USDA, NRCS, Windows Pesticide Screening Tool (WIN-PST): http://www.wcc.nrcs.usda.gov/pestmgt/winpst.html.

USDA, NRCS Wisconsin Field Office Technical Guide (FOTG), Section I, Revised Universal Soil Loss Equation 2, Wind Erosion Equation. http://www.wi.nrcs.usda.gov.

USDA, NRCS Wisconsin Field Office Technical Guide (FOTG), Section III, Resource Quality Criteria for RMS. http://www.wi.nrcs.usda.gov.

USDA, NRCS Wisconsin Field Office Technical Guide (FOTG), Section IV, Practice Standards and Specifications. http://www.wi.nrcs.usda.gov.

USDA, NRCS Wisconsin Field Office Technical Guide (FOTG), Section V, Conservation Practice

Physical Effects Worksheets.
http://www.wi.nrcs.usda.gov.

X. Definitions

Certified Pesticide Applicator (V.A.5) - All pesticide users planning to become Wisconsin certified pesticide applicators must purchase Pesticide Applicators Training (PAT) materials and may attend optional PAT training sessions offered by the UWEX PAT Program, (608) 262-7588. See UWEX PAT web site http://ipcm.wisc.edu/pat for details. Persons planning to purchase pesticides classified as "restricted use" are required to be certified by DATCP Certification and Licensing Program, (608) 224-4548, as a private or commercial applicator. Contact this DATCP web site for details: http://www.datcp.state.wi.us/arm/agriculture/pest-fert/pesticides/licenses/.

Economic Treatment Threshold (V.B.1) - a calculation used to determine when the predicted benefit from the application of a pest control treatment will exceed the cost of the treatment. WeedSOFT, University of Wisconsin - Extension Publications A3646, A4322, or other NRCS approved economic prediction tools may be used to complete this analysis.

Genetically Modified Organism (V.F.5.) - an organism whose genetic structure has been artificially modified by humans to add or enhance a beneficial characteristic. Benefits of genetic modification include increased disease resistance, resistance to specific families of herbicide products, or production by plants of substances toxic to insect pests.

Integrated Pest Management (IPM) (V.B.1) - IPM is a sustainable approach to pest control that combines the use of prevention, avoidance, monitoring, and suppression strategies to maintain pest populations below economically damaging levels, to minimize pest resistance, and to minimize harmful effects of pest control on human health and environmental resources. IPM suppression systems utilize biological, mechanical, and cultural controls and the judicious use of chemical controls. IPM programs should strive to balance economics, efficacy, and environmental risk.

Mitigation Techniques (V.A.2.) - Conservation practices or management actions implemented to reduce the impact of pest management activities on non-target organisms and natural resource concerns identified during the conservation planning resource assessment.

Mitigation techniques may include installation of additional conservation practices and/or management techniques with a documented ability to reduce the impact of pesticide on the identified resource concern. Example conservation practices contained in NRCS e-FOTG Section IV, Standards and Specifications, include 393, Filter Strip; or 328, Conservation Crop Rotation. Management techniques may include selection of an alternative pesticide product, revision of the pesticide application method, rate, or timing, or use of a non-chemical control technique.

Organic Production System (V.B.2) - A production system that is managed in accordance with the Organic Foods Production Act and regulations to respond to site-specific pest threats by integrating cultural, biological, and mechanical practices that foster the cycling of resources, promote ecological balance, and conserve biodiversity. As a general rule, the use of natural (non-synthetic) substances are allowed in organic crop production and the use of synthetic substances are prohibited. The National Organic Program regulations define the use of natural and synthetic products in organic production. The regulations also address the use of other technology such as genetically engineered products and irradiation of products.

Outstanding or Exceptional Resource Water (V.D.2.) - Outstanding Resource Waters (ORW) are the state's highest quality water bodies and are listed in Wisconsin Administrative Code Chapter NR-102.10. ORWs were identified to meet federal requirements for anti-backsliding provisions of the Clean Water Act. Exceptional Resource Waters (ERW) are surface waters that provide valuable fisheries, hydrologically or geologically unique features, outstanding recreational opportunities, and unique environmental settings, and which are not significantly impacted by human activities and are listed in Wisconsin Administrative Code Chapter NR-102.11.

Professional Agronomist (V.A.4) - an individual who is certified by a sponsoring professional organization, such as the American Society of Agronomy, based on demonstrated knowledge of the principles of crop production and management. Certification under the NRCS TechReg web site (http://techreg.usda.gov/) for Pest Management Planner may be used to meet this requirement.

Soil Quality (V.C.) - The fitness of a specific kind of soil to function within its surroundings, support plant and animal productivity, maintain or enhance

water and air quality, and support human health and habitation.

USDA National Organic Program (V.B.2) - The program authorized by the Organic Foods Production Act (7 U.S.C. 6501 et. seq.) for the purposes of implementing its provisions.

Windows Pesticide Screening Tool (WIN-PST) (V.D.1) - http://www.wcc.nrcs.usda.gov/pestmgt/winpst.html. UWEX Publication A3690, Appendix B describes how the soil/pesticide interactions are determined in WIN-PST and gives soil/herbicide ratings. When a product is not listed in the SPISP rating table, the planner will implement strategies to address surface water runoff control and address all environmental advisories on the label.