NATURAL RESOURCES CONSERVATION SERVICE

CONSERVATION PRACTICE STANDARD

PEST MANAGEMENT

(Acre)

CODE 595

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.

PURPOSES

This practice is applied as part of a Resource Management System (RMS) to support one or more of the following purposes:

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

CONDITIONS WHERE PRACTICE APPLIES

Wherever pests will be managed.

CRITERIA

General Criteria Applicable to All Purposes

A pest management component of a conservation plan shall be developed.

All methods of pest management must comply with Federal, State, and local regulations, including management plans for invasive pest species, noxious weeds and disease vectors. Compliance with the Food Quality Protection Act (FQPA); Federal Insecticide, Fungicide and Rodenticide Act (FIFRA); Worker Protection Standard (WPS); and Interim Endangered Species Protection Program (H7506C) is required for chemical pest control.

Integrated Pest Management (IPM) that strives to balance economics, efficacy and environmental risk, where available, shall be incorporated into planning alternatives. (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 include biological controls, cultural controls and the judicious use of chemical controls.) Field corn and alfalfa IPM guidance is available at UVM's Vermont Crops and Soils, Pest Management website.

An appropriate set of mitigation techniques must be planned and implemented to reduce the environmental risks of pest management activities in accordance with quality criteria in the local Field Office Technical Guide. Mitigation techniques include practices like a Filter Strip or Conservation Crop Rotation, and management techniques like application method or timing.

All methods of pest management must be integrated with other components of the conservation plan.

Clients shall be instructed to pay special attention to all environmental hazards and site-specific application criteria listed on pesticide labels and contained in Extension and Crop Consultant recommendations.

Pesticides, if used, will be handled and applied in accordance with the product label and with any federal, state, or local laws and regulations.

Additional Criteria to Protect Quantity and Quality of Commodities

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.

Additional Criteria to Protect Soil Resources

In conjunction with other conservation practices, the number, sequence and timing of tillage operations shall be managed to maintain soil quality and maintain soil loss at or below the soil loss tolerance (T) or any other planned soil loss objective. RUSLE2 will be used to predict soil erosion and the Soil Conditioning Index (SCI) will be used to predict soil quality.

Clients shall be encouraged to pay special attention to pesticide label instructions for limiting pesticide residues in soil that may negatively impact non-target plants, animals and humans.

Additional Criteria to Protect Water Resources

Pest management environmental risks, including the impacts of pesticides in ground and surface water on humans and non-target plants and animals, must be evaluated for all identified water resource concerns. The environmental risks will be measured with NRCS' Windows Pesticide Screening Tool (Win-PST) and the National Agricultural Pesticide Risk Analysis (NAPRA).

When a chosen alternative has significant potential to negatively impact important water resources, (e.g., WIN-PST "Extra High", "High" or "Intermediate" soil/pesticide human risk ratings in the drainage area of a drinking water reservoir), an appropriate set of mitigation techniques must be put in place to address risks to humans and non-target plants and animals. A Filter Strip, Irrigation Water Management or pesticide incorporation may be appropriate mitigation techniques for pesticide solution loss that is impacting a surface water body. Clients 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 and humans.

The number, sequence and timing of tillage operations shall be managed in conjunction with other sediment control tactics and practices, in order to minimize sediment losses to nearby surface water bodies.

Additional Criteria to Protect Air Resources

Clients shall be encouraged to pay special attention to pesticide label instructions for minimizing volatilization and drift that may negatively impact non-target plants, animals and humans.

Additional Criteria to Protect Plant Resources

Clients shall be encouraged to pay special attention to pesticide label instructions including those directed at:

- Preventing misdirected pest management control measures that negatively impact plants (e.g., removing pesticide residues from sprayers before moving to the next crop and properly adjusting cultivator teeth and flame burners).
- Appropriate climatic conditions, crop stage, soil moisture, pH, and organic matter in order to protect plant health.
- Limiting pesticide residues in soil that can carry over and harm subsequent crops.

Additional Criteria to Protect Animal Resources

Clients shall be encouraged to pay special attention to pesticide label instructions that minimize negative impacts to animals.

Additional Criteria to Protect Humans

Clients shall be encouraged to pay special attention to pesticide label instructions that minimize negative impacts to humans.

Additional Criteria for Controlling Invasive Plants

Control of invasive plants may include eradicating, reducing, or managing invasive species populations and preventing their spread. Control also includes restoration of native species and habitats to reduce the effects of invasive species and to prevent further invasions.

Preventing the initial establishment of invasive plants should be a major component of any Invasive Plant Species Control Plan. Early detection and control is a more efficient and effective strategy than waiting until an area is infested.

Control of noxious or invasive plants may be accomplished by mechanical, chemical, biological, prescribed burning, or a combination of all of these methods.

The control method(s) used will be designed to protect the soil from erosion and to avoid the degradation of soil quality.

Control methods will be designed to protect and encourage the growth of desirable native plant species.

When using chemical control, spot treatment methods will be used whenever feasible.

If using biological controls, release of the control agent will be in compliance with taxa-specific release standards only after securing any required Federal, State or local permits.

Areas where control measures have been used may require active re-vegetation methods to reestablish desirable plant species. Vegetative plantings and site preparation will follow the Conservation Practice Standards and vegetative establishment in the NRCS Field Office Technical Guide for applicable planting standards such as: Pasture and Hay Planting (512), Tree/Shrub Planting (612), Riparian Forest Buffer (391), Conservation Cover (327), Restoration and Management of Declining Habitats (643), Critical Area Planting (342).

Use vegetation adapted to the site conditions that will accomplish the desired purpose. Federal or state listed noxious or invasive plant species shall not be planted.

Disposal of noxious or invasive plant species from the site treated will be by appropriate methods (e.g., burned, hung, contained) to lessen the potential for the plants or their propagules to repopulate the site or spread to new areas.

CONSIDERATIONS

If commodity-specific IPM is not available, the following IPM principles should be considered:

- Prevention, such as using pest-free seeds and transplants, cleaning tillage and harvesting equipment between fields, irrigation scheduling to avoid situations conducive to disease development, etc.
- Avoidance, such as using pest resistant varieties, crop rotation, trap crops, etc.
- Monitoring, such as pest scouting, soil testing, weather forecasting, etc. to help target suppression strategies and avoid routine preventative pest control.
- Suppression, such as cultural, biological and chemical controls, that can reduce a pest population or its impacts. Chemical controls should be used judiciously in order to minimize environmental risk and pest resistance.

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.

On irrigated land, irrigation water management should be designed to minimize pest management environmental risk.

Additional Considerations for Invasive Plants

Consider choosing methods of control that cause no or limited soil disturbance. Disturbed soil may lead to increased germination of invasive plant seeds.

Plant material native to the State or local area should be used whenever possible.

Consider the impacts of control methods on pollinators and pollinator habitat.

Consider and minimize the impacts of control methods on native and/or desirable vegetation.

Consider the loss of habitat and affected wildlife species during the control process and during site recovery.

Consider the intended change in habitat function and its structure resulting from the control of the noxious and invasive plant species. Consider control methods that leave structure in place while still allowing control of the invasive species.

Consider the off-site impacts of control methods; e.g., smoke from controlled burning, pesticide drift, pesticide runoff.

Consider the initial cause and timing of the invasive plant occurrence and future condition. Possible site degradation over time (low pH, disturbance, poor management, lack of native seed source/bank or invasive plant seed source/bank in vicinity) may have contributed to the initial occurrence of the invasive species and may contribute to re-population.

PLANS AND SPECIFICATIONS

The pest management component of a conservation 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(s).

Specifications for applying this practice shall be prepared for each site and recorded using the tools within the VT NRCS Pest Management Workbook which includes the pest management worksheet, approved PM jobsheet and plan, record keeping, and PM checklist.

http://efotg.nrcs.usda.gov/references/public/VT/VT_595_Workbook.xlt

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

- Plan map and soil map of managed site, if applicable (use RMS plan maps if available).
- Location of sensitive resources and setbacks, if applicable (use RMS plan maps if available).
- Environmental risk analysis, with approved tools and/or procedures, for probable pest management recommendations by crop (if applicable) and pest.
- Interpretation of the environmental risk analysis and identification of appropriate mitigation techniques.
- Operation and maintenance requirements.
- Complete all items in the Pest Management Checklist found in the VT NRCS Pest Management Workbook.

PLANS AND SPECIFICATIONS FOR INVASIVE PLANT CONTROL

As a minimum, an Invasive Plant Species Control plan will be prepared for each area where these plant species are to be controlled.

Invasive Plant Species Control Plans will include:

- Objectives and goals for the site (should not be just ‘control invasives’)
- Site description including habitats or natural communities being or likely to be impaired
- Control strategies for site (e.g. eradication, containment, etc.)
- List of noxious or invasive species found on site/nearby and to be controlled
- Map or aerial photograph of the treatment area with different management units delineated.
- Control method(s) to be used: (mechanical, chemical, other)
- Timing or season of control and its frequency or number of applications if applicable
- Method of disposing of treated invasive plant materials
- Restoration techniques/strategies that include re-vegetation methods, site preparation, plant species to be established, and their rates and dates of establishment
- Schedule for monitoring re-growth and the plan for follow-up control measures if re-growth is detected.

OPERATION AND MAINTENANCE

The pest management component of a conservation 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 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 of emergency treatment centers for individuals exposed to chemicals and the telephone number for the nearest poison control center. The National Pesticide Information Center (NPIC) telephone number in Corvallis, Oregon may also be given for non-emergency information:

1-800-858-7378

Monday - Friday
6:30 a.m. to 4:30 p.m. Pacific Time

For advice and assistance with emergency spills that involve agrichemicals, the local emergency telephone number should be provided. The national 24-hour CHEMTREC telephone number may also be given:

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. (State or local regulations may be more restrictive).
- 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 two years. Pesticide application records shall be in accordance with USDA Agricultural Marketing Service's Pesticide Record Keeping Program and state specific requirements. Recorded keeping shall include: date of application; tract and field number treated; acres treated; pest management method (including mitigation technique); product brand name; product EPA Reg. No.; amounts and units; and purpose (including target pest).
- Areas where invasive plant control measures have been taken will be monitored at least annually for the purpose of detecting re-growth of controlled species or the introduction and establishment of new noxious or invasive species while the site is in recovery.
- Any re-growth of the controlled invasive plant species in the treated area(s) will be controlled with follow-up treatment(s).

REFERENCES

1. Federal Noxious Species Act of 1974, 7 U.S.C. §§ 2801-2814, January 3, 1975, as amended 1988 and 1994
2. Executive Order 13112 of February 3, 1999 - Invasive Species, Federal Register: February 8, 1999 (Volume 64, Number 25).
3. The Nature Conservancy, Invasive Species Information and Resources http://tncweeds.ucdavis.edu/index.html
4. Vermont Noxious Weed Listing – Vermont Agency of Agriculture. http://www.vermontagriculture.com/noxiousweeds.PDF
5. Invasive Plant Atlas of New England - http://invasives.eeb.uconn.edu/ipane/

6. National Invasive Species Information Center-
7. http://www.invasivespeciesinfo.gov/index.shtml
8. Vermont Regulations for Control of Pesticides – VT Agency of Agriculture
9. http://www.vermontagriculture.com/VTregs91.htm
10. http://pss.uvm.edu/vtcrops/?Page=pest.html

DEFINITIONS

Invasive species - A species that demonstrates rapid growth and spread, invades habitats, and displaces other species. Species that are prolific seed producers, have high seed germination rates, easily propagate asexually by root or stem fragments, and/or rapidly mature predispose a plant to being an invasive. (Wetland Science Institute)

Invasive species - means an alien species whose introduction does or is likely to cause economic or environmental harm or harm to human health. (Executive Order 13112 of Feb. 3, 1999)

Noxious Species - Any living stage (including but not limited to seeds and reproductive parts) of any parasitic or other plant of a kind, or subdivision of a kind, which is of foreign origin, is new to or not widely prevalent in the United States, and can directly or indirectly injure crops, other useful plants, livestock, or poultry or other interests of agriculture, including irrigation, or navigation or the fish and wildlife resources of the United States or the public health (Federal Noxious Species Act).

Control - means, as appropriate, eradicating, suppressing, reducing, or managing invasive species populations, preventing spread of invasive species from areas where they are present, and taking steps such as restoration of native species and habitats to reduce the effects of invasive species and to prevent further invasions. (Executive Order 13112 of Feb. 3, 1999)