Natural Resources Conservation Service

CONSERVATION PRACTICE STANDARD

HERBACEOUS WEED TREATMENT

CODE 315

(ac)

DEFINITION

The removal or control of herbaceous weeds including invasive, noxious, and prohibited plants.

PURPOSE

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

- Enhance accessibility, quantity, and/or quality of forage and/or browse
- Restore or release native or create desired plant communities and wildlife habitats consistent with the site potential
- Protect soils and control erosion
- Reduce fine fuel loads and wildfire hazard
- Control pervasive plant species to a desired level of treatment that will ultimately contribute to creation or maintenance of an ecological site description “steady state,” addressing the need for forage, wildlife habitat, and/or water quality
- Improve rangeland health

CONDITIONS WHERE PRACTICE APPLIES

On all lands except active cropland where removal, reduction, or manipulation of herbaceous vegetation is desired.

This practice does not apply to removal of herbaceous vegetation by prescribed fire (use Conservation Practice Standard (CPS) Prescribed Burning (Code 338) or removal of herbaceous vegetation to facilitate a land-use change (use CPS Land Clearing (Code 460).

CRITERIA

General Criteria Applicable to All Purposes

Apply herbaceous weed management in a manner to achieve the desired control of the target species and protection of desired species. Accomplish this by mechanical, chemical, or biological methods either alone or in combination.

NRCS will not develop biological or chemical treatment recommendations except for biological control utilizing grazing animals. Use CPS Prescribed Grazing (Code 528) to ensure desired results are achieved and maintained.

NRCS may provide clients with acceptable biological and/or chemical control references.

NRCS may provide clients with current acceptable references to achieve desired management objectives.

When herbicides are used, environmental hazards and site-specific application criteria listed on pesticide labels and contained in extension service and other approved pest management references, will be followed.

Plan herbaceous weed treatment post-treatment measures as needed to achieve resource management objectives.

Control livestock and people access to treated areas based on management methods applied and restrictions listed on the chemical labels.

Manage and/or dispose of treated weed species in a manner that will prevent the spread of herbaceous weeds to new sites.

Additional Criteria to Enhance Accessibility, Quantity, and Quality of Forage and/or Browse

Apply herbaceous weed treatment in a manner to minimize negative impact to forage and/or other non-targeted plants. Plan the timing and sequence of control in coordination with specifications developed for CPSs Prescribed Grazing (Code 528) or Forage Harvest Management (Code 511).

Additional Criteria to Restore or Release Native or Create Desired Plant Communities and Wildlife Habitats Consistent with the Site Potential

Apply herbaceous weed treatment in a manner to protect the health and vigor of native or desired plant species.

Use applicable ecological site description (ESD) State and transition models or other suitable information, to develop specifications that are ecologically sound and defensible. Treatments will be congruent with dynamics of the ecological site(s) and keyed to states and plant community phases that have the potential and capability to support the desired plant community. If an ESD is not available, base specifications on the best approximation of the desired plant community composition, structure, and function.

Conduct treatments during periods of the year when weed species are most vulnerable and will promote restoration of the native or desired plant communities.

Apply herbaceous weed treatment in a manner that maintains or enhances important wildlife habitat requirements.

Conduct treatments during periods of the year that accommodate reproduction and other life cycle requirements of target wildlife and pollinator species.

Apply treatments that maintain or enhance plant community composition and structure to meet the requirements of target wildlife species.

Additional Criteria to Protect Soils and Control Erosion

Apply herbaceous weed treatment to minimize soil disturbance and soil erosion.

Apply additional treatment as needed to protect soils and prevent erosion.

Additional Criteria to Reduce Fine Fuel Loads and Wildfire Hazard

Treat weed species in a manner that creates a native or desired plant community which reduces the potential for accumulating excessive fuel loads and increased wildfire hazards.

Apply treatment methods in a manner that minimize the potential for unintended impacts to air resources (i.e., smoke, chemical drift, etc.).

Additional Criteria to Control Pervasive Plant Species to a Desired Level of Treatment

Plan and apply additional treatments to achieve effective control of pervasive plant species through reapplication.

Additional Criteria to Improve Rangeland Health

Apply herbaceous weed treatment in a manner to enhance the health and vigor of native or desired plant species.

Complete rangeland health assessment based on the applicable “Rangeland Health Reference Worksheet” from the appropriate ESDs. Identify causes of invasion, contributing processes (i.e., disturbance, dispersal, reproduction, resource acquisition, environment, life strategies, stress, interference) and associated ecological processes that are in disrepair. Appropriate tools and strategies must be based on process-based principles.

Treatments will be conducted during periods of the year when weed species are most vulnerable and will promote restoration of the native or desired plant communities.

Design and execute a plan using adaptive management which is the feedback mechanism for adjusting, as knowledge is gained from earlier management applications.

CONSIDERATIONS

Consider using CPS Integrated Pest Management (Code 595) in support of herbaceous weed control and weed management. Consider soil erosion potential and difficulty of vegetation establishment when choosing a method of control that causes soil disturbance.

Consider the appropriate time period for treatment. Some herbaceous weed management activities can be effective when applied within a single year; others may require multiple years of treatment(s) to achieve desired objectives.

Consider impacts to wildlife species, in general, treatments that create a mosaic pattern may be the most desirable.

Consider impacts to wildlife food supplies, space, and cover availability when planning the method and amount of herbaceous weed management.

State-issued licenses may be required when using chemical pesticide treatments.

For air quality purposes, consider using chemical methods of herbaceous weed management that minimize chemical drift and excessive chemical usage and consider mechanical methods of herbaceous weed management that minimize the entrainment of particulate matter.

Adjacent land uses must be considered before chemicals are used.

PLANS AND SPECIFICATIONS

Prepare plans and specifications for each field or treatment unit according to the criteria included in this standard. At a minimum, a herbaceous weed management practice plan will include—

1. Goals and objectives statement.
2. Plan map and soil map for the site.
3. Pretreatment cover or density of the target plant(s) and the planned post-treatment cover or density.
4. Maps, drawings, and/or narratives detailing or identifying areas to be treated, pattern of treatment (if applicable), and areas that will not be disturbed.
5. A monitoring plan that identifies what will be measured (including timing and frequency) and the changes in the plant community (compare with objectives) that will be achieved.

For Mechanical Treatment Methods.

Plans and specifications will include items 1 through 5 above, plus the following:

- Type of equipment to use for management.
- Dates of treatment for effective management.
- Operating instructions (if applicable).
- Techniques and procedures to be followed.

For Chemical Treatment Methods.

Plans and specifications will include items 1 through 5, above, plus the following:

- Acceptable chemical treatment references for containment and management of target species.
- Documented techniques to be used, planned dates and rates of application.
- Evaluation and interpretation of herbicide risks associated with the selected treatment(s) using WIN-PST or other approved tools.
- Any special mitigation, timing considerations or other factors (such as soil texture and organic matter content) that must be considered to ensure the safest, most effective application of the herbicide.
- Reference to product label instructions.

For Biological Treatment Methods.

Plans and specifications will include items 1 through 5, above, plus the following:

- Acceptable biological treatment references for the selected biological agent used to contain and manage the target species.
- Document release date, kind, and number of agents.
- Timing, frequency, duration, and intensity of grazing or browsing.
- Desired degree of grazing or browsing use for effective management of target species.
- Maximum allowable degree of use on desirable non-target species.
- Special mitigation, precautions, or requirements associated with the selected treatment(s).

OPERATION AND MAINTENANCE

Operation

Herbaceous weed management practices will be applied using approved materials and procedures. Operations will comply with all local, State, and Federal laws and ordinances.

The operator will develop a safety plan for individuals exposed to chemicals, including telephone numbers and addresses of emergency treatment centers 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 nonemergency information: 1-800-858-7384, Monday to Friday, 6:30 a.m. to 4:30 p.m., Pacific Time. The national Chemical Transportation Emergency Center (CHEMTRAC) telephone number is: 1-800-424-9300.

- Follow label requirements for mixing/loading setbacks from wells, intermittent streams and rivers, natural or impounded ponds and lakes, and reservoirs.
- Post signs, according to label directions and/or Federal, State, Tribal, and local laws, around fields that have been treated. Follow restricted entry intervals.
- Dispose of herbicide and herbicide containers in accordance with label directions and adhere to Federal, State, Tribal, and local regulations.
- Read and follow label directions and maintain appropriate Material Safety Data Sheets (MSDS). MSDS and herbicide labels may be accessed on the Internet at: http://www.greenbook.net/.

- Calibrate application equipment according to recommendations before each seasonal use and with each major chemical and site change.
- Replace worn nozzle tips, cracked hoses, and faulty gauges on spray equipment.
- Maintain records of plant management for at least 2 years. Herbicide application records will be in accordance with USDA Agricultural Marketing Service's Pesticide Recordkeeping Program and State-specific requirements.

Maintenance

After sufficient time has passed from the initial treatment to monitor the situation and gather reliable data, evaluate regrowth or reoccurrence of target species to determine success of the practice. Length of evaluation periods will depend on the herbaceous weeds species being monitored, proximity of propagules (seeds, plant materials and roots) to the site, transport mode of seeds (wind or animals) and methods and materials used.

Following initial application, some regrowth, resprouting, or reoccurrence of herbaceous weeds may be expected. Spot treatment of individual plants or areas needing retreatment should be completed as needed when weed vegetation is most vulnerable to desired treatment procedures.

Review and update the plan periodically to: incorporate new IPM technology, respond to grazing management and complex weed population changes, and avoid the development of weed resistance to herbicide chemicals.

REFERENCES

Alex, J.F. and C.M. Switer. 1982. Ontario weeds. Publ. 505, University of Guelph – Ontario Agricultural College, Guelph, Ontario, Canada.

American Sheep Industry, A. Peischel and D.D. Henry, Jr., 2006. Targeted Grazing: a Natural Approach to Vegetation Management and Landscape Enhancement.

Ciba-Geigy Corp. Plants that poison livestock: Information chart.

Cornell University Department of Animal Science. Plants Poisonous to Livestock and Other Animals. [Online]. Available at: http://www.ansci.cornell.edu/plants/.

DeWolf , G. and M. Hondalus. 1988. Common Massachusetts plants poisonous to horses. University of Massachusetts Cooperative Extension Service, Amherst, Massachusetts.

Ensminger, M.E. 1992. The stockman's handbook. (7th Ed.) The Interstate Printers and Publishers, Inc. Danville, Illinois.

Evers, R.A. and R.P. Link. 1972. Poison plants of the Midwest and their effects on livestock. Special Publication 24, University of Illinois – College of Agriculture, Urbana, Illinois.

Hamilton, G.W. and J.R. Mitchell. 2001. [Online] Poisonous plants in pastures. Univ. of New Hampshire Coop. Ext. Serv., Durham, New Hampshire. Available at http://extension.unh.edu/resources/representation/Resource000623_Rep645.pdf. (Accessed 15 October 2008).

Hill, R.J. and D. Folland. 1986. Poisonous plants of Pennsylvania. Pennsylvania Department of Agriculture, Harrisburg, Pennsylvania.

Peachey, E., A. Hulting, T. Miller, D. Lyon, D. Morishita and P. Hutchinson. Pacific Northwest Weed Management Handbook. 2016. Oregon State University, Corvallis. Oregon.

Radosevich, S.R., J.S. Holt, and C.M. Ghersa. 2007. Ecology of Weeds and Invasive Plants – Relationship to Agriculture and Natural Resource Management. Third Edition. Wiley-Interscience. A. John Wiley & Sons, Inc. 454pp.

Reed, C.F. 1970. Selected weeds of the United States. Agriculture Handbook No. 366, U.S. Government Printing Office, Washington, D.C.

Sheley, R., J. James, B. Smith, and E. Vasquez. 2010. Applying Ecologically Based Invasive-Plant Management. Rangeland Ecology & Management, 63(6): 605-613.

USDA-ARS. 2006. Bulletin 415 - Plants poisonous to livestock in the Western states. [Online]. Available at http://www.ars.usda.gov/Services/docs.htm?docid=12140 (Updated 08 February 2006, accessed 15 October 2008).

Whitson, T.D., L.C. Burrill, S.A. Dewey, D.W. Cudney, B.E. Nelson, R.D. Lee, and R. Parker. 1992. Weeds of the West. Western Society of Weed Science in cooperation with the Western United States Land Grand Universities Cooperative Extension Services and the University of Wyoming. 630pp.