

NATURAL RESOURCES CONSERVATION SERVICE
CONSERVATION PRACTICE STANDARD
HERBACEOUS WEED CONTROL

(Ac.)

CODE 315

DEFINITION

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

PURPOSE

- Enhance accessibility, quantity, and quality of forage and/or browse.
- Restore or release native or create desired plant communities and wildlife habitats consistent with the ecological site.
- Protect soils and control erosion
- Reduce fine-fuels fire hazard and improve air quality

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 Prescribed Burning - 338), removal of herbaceous vegetation to facilitate a land use change (use Land Clearing - 460), or aquatic weed control in ponds or lakes (use Fishpond Management – 399).

CRITERIA

General Criteria Applicable to All Purposes

Herbaceous weed control will be applied in a manner to achieve the desired control of the target species and protection of desired species. This will be accomplished by mechanical, chemical, cultural, or biological methods either alone or in combination.

NRCS will not develop biological or chemical treatment recommendations (e.g. NRCS will not recommend herbicides either by brand

name or active ingredient) except for biological control utilizing grazing animals. Prescribed Grazing (528) is used to ensure desired results are achieved and maintained. A Grazing Management Plan will be required.

NRCS shall only provide clients with acceptable and current biological and/or chemical control references (e.g. Weed Control Manual for Tennessee; UT Extension PB1580, UT Native Grass Manual PB1752) that achieve desired management objectives.

Evaluation of the weed problem will be made prior to treatment of the herbaceous weed (an unintended plant for a specific purpose). To the extent possible the weed problem (including source) shall be addressed.

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 must be followed.

For postemerge chemical control, treat annual weeds when in the seedling stage and biennials when in the rosette stage just prior to bolting. Perennial weeds must be treated with a systemic herbicide in the bud to bloom stage or in early fall so the chemical is carried to the root system.

Herbaceous weed control will include post treatment measures as needed to achieve resource management objectives.

Livestock and people access will be controlled based on management methods applied and restrictions as listed on the chemical labels. Respect grazing, haying, and slaughter restrictions for livestock listed on the chemical label and in the "Weed Control Manual for Tennessee".

Manage and/or dispose of treated weed species in a manner that will prevent the

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 [Field Office Technical Guide](#).

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spread of these species to new sites.

Restrictive Use Herbicides require licensing for applying these chemical treatments.

Adjacent land uses must be considered before chemicals are used.

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

Herbaceous weed control will be applied in a manner to minimize negative impacts to forage and/or other non targeted plants. Timing and sequence of control shall be planned in coordination with specifications developed for Prescribed Grazing (528) or Forage Harvest Management (512).

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

Apply herbaceous weed control 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, to develop specifications that are ecologically sound and defensible. Treatments must be congruent with dynamics of the ecological site(s) and keyed to site conditions and plant community phases that have the potential and capability to support the desired plant community. For areas lacking an ESD, specifications will be based on the best approximation of the desired plant community composition, structure, and function.

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.

When possible, apply herbaceous weed control in a manner that maintains or enhances important wildlife habitat requirements (e.g. spot treat to avoid damage to adjacent habitat, treat outside the primary nesting season if effective control of the target weed is still possible, etc).

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

Significant populations of herbaceous weed species listed on the Tennessee Invasive Exotic Pest Plant list shall be controlled (http://www.tneptc.org/invasive_plants).

Additional Criteria to Protect Soils and Control Erosion

Apply herbaceous weed control in a manner that minimizes soil disturbance and soil erosion.

Overzealous control of fencerow vegetation shall be avoided to protect from erosion. Control erosion by using selective herbicides if possible and if they provide suitable control. If aggressive weed control is necessary in the fencerow and may result in erosion, install dips to reduce runoff or cross-fence perpendicular to the main fence to prevent trailing by livestock (refer to Fence standard 382).

Additional treatments will be applied as necessary to protect soils and prevent erosion.

Additional Criteria to Reduce Fine-Fuels Fire Hazard and Improve Air Quality

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 minimizes the potential for unintended impacts to air resources, e.g., smoke, chemical drift etc.

CONSIDERATIONS

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 control activities can be effective when applied within a single year; others may require multiple years of treatment(s) to achieve desired objectives.

When wildlife habitat improvement is not the intended purpose, consider impacts to wildlife species relative to food supplies, space, and cover availability when planning the method and amount of herbaceous weed control.

During the first year of native grass/forb plantings consider mowing at a height just above the desired plants to reduce shading if

weeds are 8-10 inches or higher and the shading is significant.

For annuals or biennials, if few weeds are present, or a potential new weed is found, consider hand pulling or hoeing before seed development.

Residual herbicides can result in vegetation control in areas away from the application area via hay and manure traveling to areas where the herbicide is not wanted. Because the rate of passage is 2 days, consider rotating livestock to an untreated area prior to rotating to cropland or other land where the herbicide is not wanted.

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

Cultural weed control methods may be the most important methods in pastures and hayland. Consider that proper forage selection, routine soil sampling, good fertilization practices and proper haying or grazing methods will maintain a healthy forage base that out competes weeds, i.e. maintaining cover as residue or canopy is important and likely the most economic weed control.

Consider the timing and the type of weed when clipping to control weeds. To kill annual weeds consider clipping below their growing point (first leaf). To control annual, biennial, or perennial weeds spreading from seed, consider clipping in the early bud to early bloom stage at 3-4 inches above the ground. Avoid mowing as a means to control or eradicate perennial weeds (e.g. johnsongrass) that spread easily by roots or stolons.

Consider shallow flooding to a depth of 4 inches either alone or in combination with disking (to germinate weed seed first) on leveed flat bottomland fields of native herbaceous vegetation (moist soil impoundments) to control undesirable waterfowl plants (e.g. cocklebur, asters, broomsedge bluestem). Consider the time of year and duration of flooding relative to the target weed.

Due to preferential weed species grazing by goats or sheep, consider the effectiveness of this method based on the target weed. Favor

sheep over goats for herbaceous weed control. Goats may not provide adequate control of herbaceous weeds if woody plants are also present.

For short term results (high intensity grazing) consider stocking goats or sheep at much higher stocking rates (up to 100 head per acre) and confine the animals to those areas of heavy growth concentrations of the target weeds. A normal stocking rate of 6 to 15 head per acre may take years to achieve the desired weed control.

When weeds or undesirable plants make up 50% or more of the stand, consider renovation or re-establishment of the desired plant community.

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 control practice plan shall include:

1. Goals and objectives statement.
2. Plan map and soil map for the site.
3. Pre-treatment cover or density of the target plant(s) and the planned post-treatment cover or density and desired effects from the planned treatment.
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 shall 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.
- Document 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. If the toxicity rating sheet in the TN Pest Management Workbook rates all chemicals to be used as low or very low, WIN-PST does not have to be run.
- 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 control practices shall be applied using approved materials and procedures. Operations will comply with all local, state, and federal laws and ordinances.

Success of the practice shall be determined by evaluating re-growth or reoccurrence of target species after sufficient time has passed to monitor the situation and gather reliable data. Length of evaluation periods will depend on the herbaceous weed 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.

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. In Tennessee, the main Poison Control Center for the state is the Middle Tennessee Poison Center in Nashville. Their national emergency telephone number is 1-800-222-1222. The administrative line is 1-615-936-0760.

The National Pesticide Information Center (NPIC) telephone number in Corvallis, Oregon, may also be given for non-emergency 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 herbicide mixing/loading setbacks from wells, intermittent and perennial 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/>

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- 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 two years. Herbicide application records shall be in accordance with USDA Agricultural Marketing Service's Pesticide Recordkeeping Program and state-specific requirements.

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

Review and update the plan periodically in order to incorporate new technology; response to grazing management and complex weed population changes; and avoid the development of weed resistance to herbicide chemicals by adopting or altering treatments as needed following the initial applications.

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.

Cheney, M. Common Poisonous Plants of Western Washington which Affect Livestock. [Online] Available at http://www.piercecountycd.org/tip_toxicplants_p.html. (Accessed 15 October 2008).

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, MA.

Ensminger, M.E. 1992. The Stockman's Handbook. (7th Ed.) The Interstate Printers and Publishers, Inc. Danville, IL.

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, IL.

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

Harper, C.A., G.E. Bates, M.P. Hansbrough, M.J. Gudlin, J.P. Gruchy, and P.D. Keyser. 2007. Native warm-season grasses: identification, establishment, and management for wildlife and forage production in the Mid-South. University of Tennessee, Knoxville, TN. Extension PB 1752. 189 pp.

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

Nelms, Kevin D. ed. 2007. Wetland Management for Waterfowl Handbook. Mississippi River Trust, Natural Resources Conservation Service, United States Fish and Wildlife Service. 136 pp.

Pennsylvania State University. 2001. Weed Management in Pasture Systems. Agronomy Facts 62. 15 pp. <http://www.cas.psu.edu>

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

Rhodes, G. Neil Jr., Gregory K. Breeden, Gary Bates, and Scott McElroy. Hay Crop and Pasture Weed Management. University of Tennessee Extension Publication PB1521. 24 pp. <http://www.utextension.utk.edu/>

Steckel, Larry. 2010. 2010 Weed Control Manual for Tennessee. UT Extension Publication 1580. 126 pp. <http://www.weeds.utk.edu/>

Tennessee Exotic Pest Plant Council. 2009. Invasive Exotic Pest Plants in Tennessee: December 2009 (2nd edition). http://www.tneptc.org/invasive_plants

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).