



CONSERVATION ENHANCEMENT ACTIVITY

E511A

CONSERVATION STEWARDSHIP PROGRAM

Harvest of crops (hay or small grains) using measures that allow desired species to flush or escape

Conservation Practice 511: Forage Harvest Management

APPLICABLE LAND USE: Crop (Annual & Mixed); Crop (Perennial)

RESOURCE CONCERN: Animals

ENHANCEMENT LIFE SPAN: 1 year

Enhancement Description

Harvest of crops (hay or small grains) using conservation measures that allow desired species to flush or escape (**See State Wildlife Action Plan for species list**). Conservation measures include timing of harvest, idling land during the nesting or fawning period, and applying harvest techniques that reduce mortality to wildlife.

Criteria

- Forage will be harvested at a frequency and height that optimizes the desired forage stand, plant community, and stand life. Follow State Cooperative Extension Service (CES) recommendations for forage harvest based on stage of maturity, moisture content, length of cut, stubble height, and harvest interval. The following criteria must be met:
  - Harvest forage at the stage of maturity that provides the desired quality and quantity without compromising plant vigor and stand longevity.
  - Harvest silage/haylage crops within the optimum moisture range for the type of storage method(s) or structure(s) being utilized. CES recommendations must be followed for optimum moisture content and levels, as well as methods and techniques to monitor and/or determine moisture content and

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levels. Avoid fermentation and seepage losses of digestible dry matter from direct cut hay crop silage (moisture content >70%) by treatment with chemical preservatives or addition of dry feedstuffs. For optimal dry hay quality, rake hay at 30% to 40% moisture and ted or invert swaths when moisture is above 40%. To preserve forage quality and quantity, bale field-cured hay at 15% to 20% moisture and bale force air-dried hay at 20% to 35% moisture.

- When harvested for ensilage, forage will be chopped to a size appropriate for the type of storage structure used and optimal effective fiber. The selected length of chop will allow adequate packing to produce the anaerobic conditions necessary to ensure the proper ensiling process. A shorter chop length on very dry silage may help to ensure good packing and adequate silage density.
- Cut forage plants at a height that will promote the vigor and health of the desired species. Cutting heights will provide adequate residual leaf area; adequate numbers of terminal, basal, or auxiliary tillers or buds; insulation from extreme heat or cold; and/or unsevered stem bases that store food reserves needed for full, vigorous recovery. Follow CES recommendations for proper stubble heights to avoid winterkill of forage species in cold climates.
- Forage shall not contain contaminants that can cause illness or death to the animal being fed or rejection of the offered forage. Check CES contaminant notices, cautions, and recommendations for the specific harvest site location and area.
- Appropriate harvest schedule(s), cover patterns, and minimum plant heights to provide suitable habitat for the desired wildlife species should be implemented and maintained (See State Wildlife Action Plan).
- Time harvests to benefit the desired wildlife species by following state guidelines.
- Producer will apply and maintain at least two of the following management actions specified to improve or protect grassland functions for the state-identified or targeted wildlife species:

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- Do not cut hay on at least 1/3 of the hay acres each year. Idle strips or blocks must be at least 30 feet wide.
- For at least 1/3 of the hay acreage, hay cutting must occur outside of the primary nesting or fawning seasons based on state-established dates for the targeted species.
- Increase forage heights after mowing to state-specified minimum heights for the targeted species on all hay acres.
- For all harvest activities that will occur during the nesting/fawning season, the producer will implement at least two of the following actions to flush wildlife during the harvest operation:
  - Attach a flush bar on the mower/harvest equipment.
  - Conduct all harvest/mowing during daylight hours.
  - Begin the harvest pattern either:
    - On one end of the field, working back and forth across the field or
    - In the center of the field, working outward.



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## Documentation and Implementation Requirements

### Participant will:

- Prior to implementation, develop a map delineating the fields selected for improving wildlife habitat and enrolled in the enhancement.
- Prior to implementation, develop a plan to harvest forage in a manner that protects stand longevity while maintaining or improving wildlife habitat. Plan must meet NRCS Conservation Practice Standard Forage Harvest Management (CPS 511) and the criteria for this enhancement. Coordinate the plan with NRCS Conservation Practice Standard Upland Wildlife Habitat Management (645), as applicable. At a minimum, plan must include the following for the forage harvest operations:
  - Goals, objectives, and specific purpose (improve wildlife habitat values)
  - At least two of the management actions specified for improving or protecting grassland functions for the state-identified target wildlife species
  - Implementation of at least two actions to flush wildlife during the harvest operation for all harvest activities that will be conducted during the nesting/fawning season
  - Forage species to be harvested
  - Details for each dominant forage species to be harvested:
    - Method of harvest
    - Harvest timing (stage of maturity, optimal harvest moisture content, length of cut)
    - Stubble height to be left
    - Harvest interval (including late harvest, if applicable)
    - Contaminant avoidance recommendations
- Prior to implementation, ensure forage harvesting tool/machinery is capable of cutting the forage at the height required to provide suitable habitat for the desired wildlife species without compromising plant vigor and stand longevity.

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- Prior to implementation, review the State Wildlife Action Plan as it relates to implementing this enhancement and provide the following information:

<b>Wildlife Species of Concern</b>	
<b>Habitat Requirements, such as plant heights to provide suitable habitat</b>	

- During implementation, keep the following documentation for each field:

Field	Forage species harvested	Harvest height (inches)	Harvest Date

- During implementation, time harvests to benefit the desired wildlife species.
- During implementation, take photographs of forage cutting heights with fields and date of harvest identified.
- During implementation, notify NRCS of any planned changes to ensure enhancement criteria are met.
- After implementation, make documentation and photographs of forage cutting heights available for review by NRCS to verify implementation of the enhancement.

**NRCS will:**

- As needed, provide technical assistance to meet enhancement criteria.



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- Prior to implementation, verify a map has been developed delineating the fields that will have the enhancement implemented.
- Prior to implementation, provide and explain NRCS Conservation Practice Standards Forage Harvest Management (Code 511) and Upland Wildlife Habitat Management (Code 645) as they relate to implementing this enhancement, including applicable state-specific job sheets.
- Prior to implementation, provide and explain the State Wildlife Action Plan as it relates to implementing this enhancement.
- Prior to implementation, provide technical assistance, as needed, to:
  - Develop a plan to harvest forage in a manner that protects stand longevity, while also maintaining or improving wildlife habitat.
  - Develop specifications detailing the wildlife protection measures and habitat improvement.
- During implementation, evaluate any planned changes to ensure enhancement criteria are met.
- After implementation, review documentation and photographs of forage cutting heights to verify implementation of the enhancement.

**NRCS Documentation Review:**

I have reviewed all required participant documentation and determined the participant has implemented the enhancement and met all criteria and requirements.

Participant Name \_\_\_\_\_ Contract Number \_\_\_\_\_

Total Amount Applied \_\_\_\_\_ Fiscal Year Completed \_\_\_\_\_

\_\_\_\_\_  
NRCS Technical Adequacy Signature

\_\_\_\_\_  
Date

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**WASHINGTON SUPPLEMENT TO  
CONSERVATION ENHANCEMENT ACTIVITY**

**CONSERVATION  
STEWARDSHIP  
PROGRAM**

References for Forage Harvest Management (511) Enhancements

Critical nesting and fawning period in WA State is spring through July 15th each year.

**Forage Harvest Management References:**

**Forage Harvest Management (511)** Practice Standard and Specification Sheet can be found in the NRCS Field Office Technical Guide (FOTG) Section 4 – Practice Standards and Supporting Documentation/Forage Harvest Management (511) folder.

<https://efotg.sc.egov.usda.gov/#/state/WA>

**Idaho Forage Handbook BUL 547 Third Edition**

University of Idaho Extension, Moscow, Idaho. Information on hay and pasture management. [Idaho Forage Handbook BUL0547.pdf - Google Drive](#)

**Pasture and Hayland Renovation for Western Washington and Oregon EB1870**, Washington State University Extension.

<https://pubs.extension.wsu.edu/pasture-and-hayland-renovation-for-western-washington-and-oregon>

**Pasture and Grazing Management in the Northwest PNW 614**, A PNW Extension

Publication. Information on hay and pasture management. [Pasture and Grazing Management in the Northwest PNW0614.pdf - Google Drive](#)

Pasture Technical Note No. 105. **The Western Oregon and Washington Pasture Calendar**, A Pacific Northwest Extension Publication PNW 699. Oregon State University, University of Idaho, Washington State University.

[https://catalog.extension.oregonstate.edu/sites/catalog/files/project/pdf/pnw699.p df](https://catalog.extension.oregonstate.edu/sites/catalog/files/project/pdf/pnw699.pdf)



## CONSERVATION STEWARDSHIP PROGRAM

### Wildlife References and WHEG’s

For a **state species list** see WDFW **State Wildlife Action Plan**  
<https://wdfw.wa.gov/species-habitats/at-risk/swap>

Washington State’s Wildlife Habitat Evaluation Guide (WHEG) is **Biology Technical Note 14 Wildlife Habitat Evaluation Guide (WHEG)**. It can be found in the NRCS Field Office Technical Guide (FOTG) Section 1/References Lists/Technical Notes by Discipline/Biology folder. <https://efotg.sc.egov.usda.gov/#/state/WA/documents>

Use the Washington Department of Fish & Wildlife (WDFW) **Priority Habitats and Species (PHS) database** to identify priority wildlife and habitat in your area.  
<http://wdfw.wa.gov/mapping/phs/>

For Washington State’s **Sage Grouse Habitat Evaluation Guide (WHEG), and other species WHEG’s** – contact NRCS State Biologist for the current evaluation guide.

### Harvest Recommendations to Produce Excellent Hay Quality

*(Taken from Idaho Forage Handbook, Third Edition, BUL 547. University of Idaho. Glenn E. Shewmaker, Editor)*

- Quality decreases as plants mature. Schedule harvests to cut at the desired level of plant maturity.
- Consider the daily cycling of forage quality when testing forage and scheduling daily harvest.
- Hay cut in the afternoon has higher quality than morning-cut hay
- Take advantage of good weather to speed drying and harvest when you can.
- Monitor the moisture content of the forage and perform each harvest operation at the optimal time based on moisture content.
- A higher stubble height will allow faster drying from better aeration but will also significantly reduce yield.
- Increasing windrow width in heavy hay from 48 to 60 inches allows for faster dry-down, however, in light hay an increased windrow width is not necessary.
- Swathers need to be in good repair and their settings adjusted for proper conditioning of forage.
- Condition the crop during swathing (scars plant epidermis for moisture escape).
- The “super conditioner” may provide faster dry-down of alfalfa hay in some conditions.
- Rake, roll, or ted the windrowed forage (increases air movement in windrow) as necessary.
- Raking or merging swaths into larger windrows has advantages when large harvest equipment is used, such as 1-ton balers. Larger windrows allow more efficient balling because (1) hay entering the full width of the baler pickup forms a more rectangular bale, (2) fewer passes are required by the baler on the field, and (3) balers can operate at slower ground speeds.