

Landowner _____



WHAT IS FORAGE HARVEST MANAGEMENT?

Forage Harvest Management is the timely cutting and removal of forages from the field as hay, green-chop or ensilage.

PURPOSE

Forage harvest management is applied as part of a resource management system to:

- Optimize yield and quality of forage at the desired levels
- Promote vigorous plant re-growth
- Maintain stand life
- Manage for the desired species composition
- Use forage plant biomass as a soil nutrient uptake tool
- Control insects, diseases and weeds
- Maintain and/or improve wildlife habitat

HOW IT HELPS THE LAND

Harvesting Forages at the proper frequency and height will help maintain a desired healthy plant community. Healthy plant communities provide forages for haying and grazing, reduces weeds, protects soil from erosion and protects water quality by reducing potential contaminants.

WHERE THE PRACTICE APPLIES

Forage harvest management applies to all lands where forages are grown for machine harvest. These include pasturelands, rangelands and cropland.

APPLYING THE PRACTICE

Forage will be harvested at a frequency and height that will maintain a desired healthy plant community through its life expectancy. Factors considered include:

Stage of Maturity. Harvest forage at the stage of maturity that provides the desired quality and quantity. Early cuttings will result in the higher quality hay although quantity may not be at its highest and

may reduce stand life. Harvest can be delayed in order for yields to be increased, but quality will then be sacrificed. Lower quality forage is still appropriate for some classes of livestock. A forage test is the most reliable method to determine forage quality and insure that the nutritional needs of the animal being fed are met.

Delay harvest if prolonged or heavy precipitation is forecast that would seriously damage cut forage.

Moisture Content. Harvest silage/haylage crops at the ideal moisture range for the type of storage structure(s) being utilized.

- Treat direct cut hay crop silage (moisture content > 70%) with chemical preservatives or add dry feed stuffs to avoid fermentation and excess seepage which results in dry matter losses of digestible dry matter.
- For optimal dry hay quality, rake hay at 30 to 40 percent moisture and ted or invert swaths when moisture is above 40 percent.
- To preserve forage quality and quantity, bale field cured hay at 15–20 percent moisture and bale force air dried hay at 20–35 percent moisture.

Length of Cut. When harvested for ensilage forage will be chopped to a size appropriate for type of storage structure (high moisture wrapped or tubed bales) that allows adequate packing to produce the anaerobic conditions necessary to ensure the proper ensiling process.

Contaminants. Forage shall not contain contaminants that can cause illness or death to the animal being fed or rejection of the offered forage.

Harvesting Intervals. Some forage species may allow for multiple cuttings but at times may not achieve the optimum re-growth except under irrigation and additional fertility. In order to allow for food reserves to be replenished, end of season harvesting intervals should be at least 40 days for legumes and 35 days for perennial grasses before the first killing frost. After a killing frost, excess regrowth may be grazed or harvested if needed. Depending on location and severity of winters, regrowth can be left to provide soil insulation and reduce chances for winter killing.

OTHER CONSIDERATIONS

In conjunction with harvest options, explore storage and feeding options that will retain acceptable forage quality and minimize digestible dry matter loss. Also consider storage location for large square or round bales/balage with regards to inside vs. outside, along hedgerows, winter/mud considerations etc.

Well-fertilized plants withstand more intense harvest schedules and may produce a higher quantity and quality of forage. Adequate amounts of lime, nitrogen, phosphate, potash and certain minor elements are needed for yield, quality, and to maintain stand life. Harvested forage removes large amounts of nutrients per acre. A soil test should be used as a guide in determining the amount of fertilizer and lime needed for sustainable hay production.

For native hay meadows that are in poor condition due to multiple cuttings or prolonged harvests over many years, one or more years of deferment during the growing season should be practiced. The addition of nutrients may be considered but should be evaluated based on economic return.

Before forage harvest, clear fields of debris that could damage machinery or if ingested by livestock, lead to sickness (for example, hardware disease) or death.

Monitor weather conditions and take action accordingly before and after cutting to optimize forage wilting or curing time to preserve feed quality and prevent forage swaths or windrows from smothering underlying plants.

Operate all forage harvesting equipment at the optimum settings and speeds to minimize loss of leaves.

Set shear-plate on forage chopper to the proper theoretical cut for the crop being harvested. Keep knives well sharpened. Do not use re-cutters or screens unless forage moisture levels fall below recommended levels for optimum chopping action.

Regardless of silage/haylage storage method, ensure good compaction and an airtight seal to exclude oxygen and mold formation.

Schedule harvest periods to control disease, insect, and weed infestations. When a pesticide is used to control disease, insects or weeds, adhere to the specified days to harvest period stated on the pesticide label.

If objectives include providing suitable habitat for desired wildlife specie(s) consider leaving unharvested field edges, corners or odd areas that provide habitat for ground nesting wildlife within fields that are harvested in spring or early summer. Leaving unharvested areas throughout the growing season can provide brood rearing habitat for a variety of wildlife.

This job sheet is a planning tool. Guidelines for managing hay production systems can vary considerably with environmental extremes. Producers should monitor their hayfields for minimum stubble height and stage of maturity at harvest in order to maintain vigorous, healthy stands and produce quality hay.

County		Tract		Planned By	
Goals and Objectives					
Field					
Acres					
Method of Harvest					
Forage Species					
Length of Cut					
Stubble Height					
Harvest Time Intervals					
Optimal Moisture Content					
Harvest Interval					
Contaminant Avoidance					

- Allow sufficient time for plant recovery after last cutting before first frost date. Generally, this will be 40 days for legumes and 35 days for perennial grasses.
- Harvest times are for OPTIMUM quantity and quality. Later harvest usually yield more forage of lower quality.
- Some forage crops may not achieve needed regrowth except under irrigation and fertility, therefore subsequent cuttings may not be possible
- **Native hay meadows should only be harvested one time during the growing season.**

Moisture Content for Silage/Hay Crops

Crop	Moisture Percent Range
Green Chop	70 - 85
Silage	60 - 70
Haylage	40-60%
Hay	10 - 20

Growth Stage Descriptions for Grasses and Legumes

Boot – Seedhead in upper sheath but prior to emergence, top of stem swollen
 Early Head / bloom – Tip of seedhead (flowers) begins to emerge
 Medium Head / Mid-bloom – About 50% of the seedheads emerged or emerging
 Full head / bloom – Seedheads fully emerged but prior to flowering, peak pollen shed
 Early Bud – Bud begins to swell and become apparent at a few nodes
 Late Bud – Several nodes with buds; buds more swollen
 Dough – Seed becoming harder and have a dough-like consistency
 Late bloom – All flowers out

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