

**NATURAL RESOURCES CONSERVATION SERVICE
CONSTRUCTION SPECIFICATIONS**

FORAGE HARVEST MANAGEMENT

1. General Specifications:

Specifications and narratives shall be prepared for each site or type of forage to be harvested on Field Sheet: Vegetative Management, Form KS-ECS-23, using the information in Table 1.

2. Considerations:

Nutrient management: Adequate amounts of nitrogen, phosphate, potash, lime, and certain minor elements are needed for intense forage harvest schedules, to increase forage quantity and quality, and to maintain stand life. A soil test should be used as a guide in determining the amount of nutrients needed for sustainable hay production. Refer to Agricultural Waste Management Field Handbook, Section 651.0606, Nutrient Removal by Harvesting of Crops.

Companion legumes typically result in reduced nitrogen fertilizer needs, but nitrogen additions, even where legumes are present, are often required to maintain production goals.

Weed/brush control: Coordinate pesticide applications with harvest schedules to allow no adverse effects to livestock from herbicide residue in sprayed forages being fed. Follow all herbicide label directions for harvest or grazing restrictions.

Harvesting:

- **Stage of maturity and harvest interval**

Stage of maturity at harvest is the most important factor affecting forage quality. Therefore, harvest management is the primary method by which managers can influence the nutritional quality of the forage, as well as forage yield and stand life. Table 1 reflects harvest timing and height for optimum quality and quantity of the more common forage species. A forage test is the most reliable method to determine forage quality and ensure the needs of the animal being fed are met.

If higher quality is desired, a slightly earlier harvest date is needed.

If higher quantity is desired, a slightly later harvest date is needed.

The specified number of harvests per year shall be based on the forage species' ability to grow after harvest. Factors that influence the number of harvests per year include harvest height, available nutrients, climatic conditions, length of the growing season, and the minimum stubble height required at the end of the growing season.

A harvest regime that results in forages being harvested too frequently or continuously too early or too late tends to decrease overall yield, reduce plant vigor, and leads to a progressive stand decline.

- **Stubble height**

Harvesting at an appropriate stubble height generally will allow for adequate regeneration of most perennial species. When weather or circumstances necessitate harvesting at a later date than indicated in Table 1, it is advisable to mow at a slightly higher cutting height than the recommended harvest height.

Table 1 lists minimum plant height by species needed before frost.

- **Dormant season grazing**

Refer to Conservation Practice Standard and Construction Specifications 528, Prescribed Grazing, for dormant-season grazing.

Moisture Content

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

3. Definitions

- Boot – Seed head in upper sheath, but prior to emergence.
- Early Head - Tip of seed head emerging on not more than 10 percent of the stems.
- Medium Head - About 50 percent of the seed heads emerged or emerging.
- Full Head – Seed heads fully emerged but prior to any flowering.
- Early Bud - No flower color showing on 80 percent of plants.
- Late Bud - Shows flower color on 80 percent of plants.
- Early Bloom - 10 percent flowers out.
- Late Bloom - All flowers out.

Table 1 – Forage Harvest Requirements for Plant Species

SPECIES	HARVEST PERIOD	OPTIMUM CUTTING TIMES OR HARVEST INTERVAL <u>1/ 2/</u>	MINIMUM CUTTING HEIGHT (inches)	REGROWTH BY FROST (inches)
WARM SEASON GRASSES				
Bermuda grass	All cuttings	Boot to early heading	3	6
Big and Sand bluestem	One cutting prior to July 20	Boot to medium head	4	8
Crabgrass	All cuttings	Boot to early heading	2	Annual
Eastern gamagrass	All cuttings	Early boot	8	8
Indiangrass	One cutting prior to July 20	Boot to medium head	4	8
Native prairie (mixed and tallgrass)	One cutting prior to July 20	Boot to medium head for key species	4	8
Millet, 'Pearl'	All cuttings	Pre-boot	8	Annual
Prairie sandreed	One cutting prior to July 20	Boot to medium head	4	8
Reed canarygrass	First cutting Second cutting	Early boot When basal sprouts appear, about every 4 to 6 weeks <u>3/</u>	4	6
Sudangrass	All cuttings	Pre-boot, about 30 to 40 inches tall <u>5/</u>	6	Annual
Switchgrass	One cutting prior to June 25	Early boot	4	8
COOL SEASON GRASSES				
Creeping foxtail	First cutting Second cutting	Early boot to full head When 8 to 10 inches tall	3	5
Wheatgrass Intermediate/Pubescent	First cutting Second cutting	Early boot to full head When 8 to 10 inches tall <u>3/</u>	3	7
Meadow brome	First cutting Second cutting	Early boot to full head When 8 to 10 inches tall <u>3/</u>	3	6
Orchardgrass	First cutting Second cutting	Boot to early head When 8 to 10 inches tall <u>3/</u>	3	6
Ryegrass, perennial/annual	All cuttings	Boot to soft dough	4	6
Small grains	Only cutting	Milk to soft dough	4	Annual
Smooth brome	First cutting Second cutting	Early to full head (50 percent head emergence) When 8 to 10 inches tall <u>3/</u>	3	6
Tall fescue	First cutting Second cutting	Early boot stage 4 to 6 week intervals <u>3/</u>	3	4
Tall wheatgrass	First cutting Second cutting	Early to full head When 8 to 10 inches tall <u>3/</u>	3	7
Timothy	First cutting Second cutting	Early to full head When 8 to 10 inches tall <u>3/</u>	3	6
Wildryes	First cutting Second cutting	Early to full head When 8 to 10 inches tall <u>3/</u>	3	4
Western wheatgrass	First cutting Second cutting	Early to full head When 8 to 10 inches tall <u>3/</u>	3	5

Table 1 – Forage Harvest Requirements for Plant Species (Continued)

SPECIES	HARVEST PERIOD	OPTIMUM CUTTING TIMES OR HARVEST INTERVAL <u>1/ 2/</u>	MINIMUM CUTTING HEIGHT (inches)	REGROWTH BY FROST (inches)
LEGUMES				
Alfalfa	First cutting Second cutting Last cutting	Late bud to ¼ bloom Early bloom - ¼ bloom Six weeks before last killing frost	4	8
Arrowleaf clover	First cutting	Early to ¼ bloom <u>4/</u>	3	6
Alsike clover	First cutting	¼ bloom to ½ bloom <u>4/</u>	2	6
Berseem clover	First cutting	Early to ¼ bloom <u>4/</u>	3	5
Birdsfoot trefoil	All cuttings	Early to ¼ bloom <u>4/ 5/</u>	3	5
Cicer milkvetch	All cuttings	Early to ¼ bloom	3	5
Cowpeas	First cutting	Early to ½ bloom	3	Annual
Crimson clover	First cutting	Early to ¼ bloom <u>4/</u>	3	5
Hairy vetch	First cutting	Early to ¼ bloom	3	5
Ladino clover	First cutting	Early to ¼ bloom <u>4/</u>	3	5
Lespedeza, common, 'Kobe', 'Korean'	First cutting	Pre-bloom to early bloom <u>4/</u>	4	5
Red clover	First cutting	¼ bloom to ½ bloom <u>4/</u>	2	6
Sweetclovers	First cutting	When first bloom appears <u>4/ 6/</u>	3	4

1/ Allow sufficient time for plant recovery after last cutting before first frost date.

2/ Cutting times for OPTIMUM quantity and quality.

3/ Do not harvest July or August.

4/ If with companion grass, cut at correct stage for the grass.

5/ Species most commonly involved with nitrate and prussic acid toxicity are sorghums, sudangrass, and Johnsongrass. Refer to MR1018, Nitrate and Prussic Acid Toxicity in Forage, Kansas State Cooperative Extension Service, 1991.

6/ Seeds may be poisonous to horses. Cattle can be poisoned (dicoumarol) by eating moldy hay or poorly preserved silage.