



Natural  
Resources  
Conservation  
Service

**Grazing  
Lands  
Technology  
Institute**

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# National Range and Pasture Handbook

**Exhibit 4-2** Percentage of air-dry matter in harvested plant material at various stages of growth

Grasses	Before heading; initial growth to boot stage (%)	Headed out; boot stage to flowering (%)	Seed ripe; leaf tips drying (%)	Leaves dry; stems partly dry (%)	Apparent dormancy (%)
<b>Cool-season</b>	35	45	60	85	95
wheatgrasses					
perennial bromes					
bluegrasses					
prairie junegrass					
<b>Warm-season</b>					
tall grasses	30	45	60	85	95
bluestems					
indiangrass					
switchgrass					
<b>Midgrasses</b>	40	55	65	90	95
sideoats grama					
tobosa					
galleta					
<b>Short grasses</b>	45	60	80	90	95
blue grama					
buffalograss					
short three-awns					
<b>Trees</b>					
	<b>New leaf and twig growth until leaves</b>	<b>Older and full- size green leaves (%)</b>	<b>Green fruit (%)</b>	<b>Dry fruit (%)</b>	
<b>Evergreen coniferous</b>	45	55	35	85	
ponderosa pine, slash					
pine-longleaf pine					
Utah juniper					
Rocky Mountain juniper					
spruce					
<b>Live oak</b>	40	55	40	80	
<b>Deciduous</b>	40	50	35	85	
blackjack oak					
post oak					
hickory					

## 600.0603 Maintaining a balance between livestock numbers and available forage

The objective of most grazing management programs is to make optimum use of forage resources while maintaining or improving the resources. To accomplish this, a proper balance must be maintained between the number of animals using the forage and the amount and quality of forage produced.

No two years have exactly the same weather conditions. For this reason, year-to-year and season-to-season fluctuations in forage production are to be expected on grazing lands. Livestock producers must make timely adjustments in the numbers of animals or in the length of grazing periods to avoid overuse of forage plants when production is unfavorable and to avoid waste when forage supplies are above average. Timing of grazing and stock density should be managed to avoid overgrazing and yet achieve optimum proportion of plants grazed. In a rotation system, accomplishing this by changing the duration of grazing versus increasing stock density for the same grazing period can make overgrazing less likely to happen, especially when the producer has less experience with intensive grazing.

Avoidance of overgrazing is important and especially crucial during periods of rapid growth. Grazing management for the higher proportion of plants grazed can be implemented faster during periods of slow plant growth or dormancy, as the likelihood of overgrazing at this time is less. As producers gain experience with higher stock densities, shorter grazing periods can be implemented. Grazing a higher portion of plants helps to keep the vegetation more nutritious and reduces the buildup of old growth material. A livestock, forage, and feed balance sheet is useful in summarizing livestock and forage resources for use in planning and follow-through work.

### (a) Determining animal-unit equivalents

The animal-unit is a convenient denominator for use in calculating relative grazing impact of different kinds and classes of domestic livestock and of common wildlife species. An animal unit (AU) is generally one mature cow of approximately 1,000 pounds and a calf as old as 6 months, or their equivalent. An animal unit month (AUM) is the amount of forage required by an animal unit for 1 month. Animal unit equivalents vary somewhat according to kind and size of animals. States can, therefore, establish their own AU guides on the basis of locally available data relative to forage requirements.

The Natural Resource Conservation Service has elected to use 26 pounds of oven-dry weight or 30 pounds air-dry weight (as-fed) of forage per day as the standard forage demand for a 1,000-pound cow (one animal unit). This consumption rate is equal to 2.6 percent of the body weight. Forage consumption is affected by many factors and varies with individual animals. Some of these factors include:

- forage quality (crude protein and digestibility)
- standing crop
- age of the animal
- supplementation
- topography
- animal breed type
- physiological stage
- weather factors
- watering facilities

The National Research Council has calculated the requirements for a 1,100-pound dry beef cow to be 17.6 pounds per day. This is a calculated value based on a confined animal, and not what a 1,100-pound, free ranging, dry cow could eat to fill or capacity. Research has validated intake rates for beef cows as low as 1.5 percent of the body weight to a high of 3.5 percent. No single rate is always correct.

A free ranging 1,000-pound lactating cow grazing forage that is about 7 percent crude protein and 58.5 percent digestible would consume about 25 pounds of forage per day. If the forage quality is increased to 10 percent crude protein and 70 percent digestibility, forage intake would increase to about 32 pounds per day.