

Forages

by Dr. Rocky Lemus

Why measure yield? Pasture yield is the most important determinant of animal performance, yet is the most difficult to define and measure. Many of the important management decisions a livestock producer makes related to the management of the available forage resources. Knowing the forage dry matter yield of a given acreage is important in determining the productivity of the crop, purchasing or selling hay, making fertility and feeding recommendations, planning grazing schemes and adjusting stocking rates. It is important to take into consideration that the amount of forage produced per acre will vary significantly from one location to another. These variations are due to climatic changes, soil types, forage species, moisture, and management.

Table 1. Average dry matter yields in pounds per acre (lb/ac) per inch for various forage species.

Forage Species	Yield (lb/ac/in)
Legumes	
Alfalfa	225
Annual Legumes	130
Arrowleaf Clover	200
Crimson Clover	200
Red Clover	220
Sericea Lespedeza	175
Cool Season Grasses	
Annual Ryegrass – Fall drilled	250
Annual Ryegrass – Fall broadcasted	170
Annual Ryegrass – Spring broadcasted	200
Orchardgrass	180
Orchardgrass - clover	200
Tall Fescue	210
Small Grains* – Fall drilled	150
Small Grains – Spring drilled	115
Warm Season Grasses	
Bahiagrass	285
Bermudagrass	260
Crabgrass	130
Dallisgrass	150
Native Warm Season Grasses	200
Mixed Pasture	180

*Small grains = rye, oats, wheat, barley, and triticale.
Source: Noble Foundation Grazing School, 2007 (online); Ball et al., 2002

It is recommended not to graze pasture below 3 inches to allow a rapid recovery and reduce stand loss. If a pasture has 6 inches of growth, this means 3 inches are grazeable. It is estimated that there are 200 pounds (dry matter) of grass per acre-inch. On 50 acres, this represents 30,000 pounds of available forage per acre (50 acres times 3 inches times 200 lbs/acre/inch). It is safe to assume that harvest efficiency under continuous grazing is approximately 25 to 50%, but efficiency can increase in a rotational grazing system up to 75%. Thus, the livestock will consume only 15,000 pounds of forage. Estimated daily dry matter intake levels of various groups of livestock are shown in Table 2. Dairy cows require on average about 26 pounds of forage (dry matter) per day. Fifty cows eating 26 pounds of dry matter per day equals 1,300 pounds of total forage consumed daily. The available 15,000 pounds of forage to be consumed by 50 cows will last about 12 days (15,000 lbs. available in pasture / 1,500 lb. daily consumption by herd). It is always recommended to use a management goal of 50%, meaning, “take half and leave half.” The formula below calculates the approximate number of days that the pasture can support a specific group of animals:

Days = ((Total Forage (lbs/ac) X # Ac. X % Grazing Efficiency)) / ((Avg. Animal Wt. X Intake Rate (% Body Weight) X Animal #))

Table 2. Estimated daily dry matter intake (DDMI) by various animals based on body weight.

Livestock	Animal Weight (lb)*	DDMI (% Body Weight)	DDMI (lb)
Cow (mature beef)	1000	2	20
Cow (mature dairy)	1000	2.6	26
Cattle (yearling)	750	2	15
Sheep	150	2	3
Goat	100	2	2
Horse	1200	3	36
Donkey	700	3	21

*Average weight of mature male or female animal.