Pastureland Management Guide Sheet

For Use in Boulder County, Colorado

Revised 1/1/2016

Introduction

- Rangeland is defined as those areas that may consist of mostly native vegetation that receive no supplemental precipitation. Irrigated pastures are defined as areas that may have native or introduced vegetation that are managed and receive supplemental water. Irrigated pastures are normally considered as ones that receive supplemental irrigation for most of the growing season. Pastures that only receive irrigation once or twice in the spring are considered to be similar to rangeland.
- Productivity of any pastureland or rangeland is dictated by soil type, topography, climate and vegetative species.
- This guide sheet was developed to assist landowners (mostly small acreage) in their grazing management.
- Most pastures in this area consist of introduced grass and forb species, although some native species may remain or have re-introduced themselves. There are a few areas of native vegetation.
- Vegetative composition doesn't remain static on rangeland or pastureland. Composition may change with varying precipitation and management. Quite often overgrazing or even no grazing can allow weedy undesirable species to establish.
- Based on the traditional range condition (similarity index) classes, pasturelands can be rated as excellent, good, fair and poor. Excellent condition is defined as: 76 – 100% of the vegetation is a mix of desired forage plants such as grasses, legumes, forbs and shrubs and very few undesirable plants. Good condition is 51 – 75% desirable forage plants with limited undesirable plants. Fair condition is 26 – 50% desirable forage plants with mostly undesirable plants. Poor condition is 0 – 25% desirable forage plants with the major portion being undesirable plants.

Livestock stocking rate

- Stocking rate is the number of animals that a land parcel can support while not overgrazing or affecting the health of the desired forage plants. Stocking rate is a function of: soil, ecological site, and number of acres, forage plant condition, animal type and number, production and weather conditions.
- Overgrazing is grazing to the point that affects desired forage plant health and makes the soil susceptible to erosion. Overgrazing occurs when plants are exposed to frequent repeated intensive defoliation for extended periods of time without sufficient recovery periods. The stubble height is determined by the forage plant species. A rule of thumb is 3 – 4" but this may need to be taller depending on the predominate plant species. For irrigated pastureland, a minimum of 30 days is recommended as a rest period. However, it is best to monitor for regrowth rather than number of rest days. For non-irrigated lands, 60 – 90 days or more may be required for rest. Again, monitoring of grazing time, height and regrowth is the best indicator rather than time.
- Production is often defined by the term Animal Unit Month (AUM) which is the forage amount required by one Animal Unit (AU) for one month. An Animal Unit is equivalent to a 1000 pound cow. It may also be defined as AUM/AC which is Animal Unit Month per acre. Forage use is also defined as a percent of body weight needed to be consumed by the animal to maintain health. For example, a non-lactating cow needs to consume 1.8 – 2% of its body weight daily to maintain its health. Pregnant or lactating animals, during severe weather conditions or heavily worked horses will need to consume a higher percentage to maintain health. This percentage will vary by species. As a general rule horses are 1 – 2%, sheep are 1.5 - 2%, goats are 2 - 3%, and pigs are 4 - 6%.
- A simpler method to determine AUM/AC (AC/AUM) is to use the following average number for each range condition based on the NRCS Technical Guide

Excellent	Good	Fair	Poor
0.55 (1.8)	0.45 (2.2)	0.35 (2.9)	0.25 (4.0)

Key Points

- After determining the stocking rate, then a grazing system should be developed. Never graze for more than the number of days/hours allowed in a year by the calculation. Always allow sufficient rest periods. Exceeding the rest period benefits the plants while exceeding the grazing period will harm the plants.
- Continuous grazing allows the animals to selectively graze certain plants. This may cause die-out of desirable plants and favoring of undesirable plants. A grazing system will protect desired plants and enhance their growth.
- Grazing periods in each pasture should be short, no more than 10 – 14 days with the priority on the rest periods between grazing periods. A sufficiently sized dry lot/sacrifice area may be needed if the number of animals exceeds the stocking rate or during years of lower precipitation.
- A minimum of at least 4 pastures is needed to develop a grazing system. The more pastures the better to allow for shorter grazing periods and longer recovery periods. Temporary fencing may be used to allow for more flexibility in pasture design. Adjust the grazing period based on the pasture size and forage plant types present.
- Never graze forage plants lower than 3 – 4" or the acceptable height for the forage type on the property. The stubble height must be maintained year around.

Animal Unit Equivalents (AUE's)

- Beef cow (assuming 1200#) = 1.25
- Heifer/Steer = 0.7 – 1.2 (depending on weight, 700 – 1200#)
- Dairy cow = 1.4
- Sheep = 0.2
- Goat = 0.2
- Bison = 1.1
- Llama/alpaca = 0.4/0.2
- Horse =1.25
- Yak = 0.8 – 1.0
- Swine = 0.3

Additional Information:

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https://efotg.sc.egov.usda.gov/references/public/TN/Prescibed_Grazing_(528)_Fact_Sheet_Final_2007.pdf

https://efotg.sc.egov.usda.gov/references/public/SD/528.pdf

How to Determine Annual Forage by Clipping, Drying and Weighing

Step 1

You will need a Vegetation Sampling Hoop that you can purchase from Forestry Suppliers http://www.forestry-suppliers.com/product_pages/Products.asp?mi=73751&itemnum=78505. You can also make one out of plastic coated cable available from your local hardware store. The length of cable required is 10' 11 ¾". You can then glue a plastic or metal union of the suitable size on one end of the cable and when using it all you have to do to make the circle is to plug the free end into the union fitting and make it as close to a circle as possible. The hoop is 9.6 square feet in area and this is for a good reason. After weighing the vegetation in grams and multiplying that number by 10, the grams per hoop (9.6 ft^2) converts directly to pounds per acre. Example: 65 grams of forage in the hoop x 10 = 650#/ac.

You will also need a scale measured in grams.

http://www.forestry-suppliers.com/product_pages/Products.asp?mi=63951&itemnum=93013

http://www.benmeadows.com/pesola-spring-scale-with-clip-300g-capacity-2g-graduations-22cm-l_s_277504/?n=brandName%7cPESOLA&page=1&searchterm=scales

Step 2 (this is best to do at the end of the growing season or in an un-grazed area left over from the previous year)

Find an un-grazed area(s) that is representative of the field and set the hoop down into the vegetation. Carefully move the vegetation that the hoop is resting on and pull the vegetation up so that the plants rooted out side of the hoop no longer reach into the hoop and the plants rooted in the hoop remain within that boundary. With a pair of grass clippers cut a ring around the outside of the hoop so that there is a space between the vegetation in the hoop and the rest of the pasture. This prevents mistakenly cutting plants from outside the hoop and including them in the calculation. Weigh a bag large enough to hold the vegetation contained within the hoop (that is the tare weight) and write that weight on the bag. Clip the plants just above ground level (about 1 cm) and put the clippings into the bag.

Step 3

Dry the bag of vegetation for about 7 days. You can do this in the house or set the bag on the dashboard of a car pointed toward the sun (with warm days this could reduce the drying time).

Step 4

Weigh the bag and clippings and deduct the tare weight to determine the grams of vegetation. Multiply that number of grams by 10 and that will give you the pounds per acre of production.

Determining Stocking Rate Estimates for Your Property

Complete areas that are shaded gray

Land Inventory

How many acres do you graze?	14
What is the condition of the pastures?	Good

Pasture Condition Reference and Estimated Forage Production:

Irrigated	***Excellent***	***Good***	***Fair***	***Poor***
				
8,000 to 4,000 #/Ac	*4,000 to 2,500 #/Ac*	*2,500 to 1,500 #/Ac*	*1,500 to 800 #/Ac*	*800 to 200 #/Ac*

Enter estimated annual forage production (#/Ac air-dry forage):	1200	*Note: This is only an estimate. Clipping and weighing an ungrazed sample will give you the #/Ac.*
Calculated total forage production:	16800	
Calculated total usuable forage:	4200	
Calculated total usuable forage/AC:	300	

Determine Livestock Animal Unit Equivilant

Animal Unit Equivelents (AUE) are based on the indvidual animal and are calculated by taking 10% of the animal's weight. For example a cow weighing 1400 pounds has a AUE of 1.4

Inventory of Livestock AUE

Type of Livestock	*Number of Livestock*	*Avg. Weight of Livestock*	*AUE*	*Total Animal Units*
Cow or Cow/Calf Pair	2	1200	1.2	2.4
			0	0
			0	0
			0	0
			0	0
TOTAL ANIMALS	**2**		**TOTAL**	**2.4**

Available Days of Grazing

Total Animal Units:	2.4
Total Acres:	14
Animal Unit Months / Acre:	0.33
Total Animal Unit Months:	4.6
Grazing Period in Months:	1.92