Grazing Management

(highlight appropriate rows)

	Begin Grazing	End Grazing	
	Minimum Height Vegetative Growth 2/ 5/ 6/	Minimum Stubble Height	Minimum Regrowth Before Killing Frost 3/ 4/
Forage 1/	*Inches*	*Inches*	*Inches*
Kentucky Bluegrass	4-6	2	4
Orchardgrass	6-10	4	6
Bromegrass	6-12	4	6
Tall Fescue	6-10	4	6
Reed Canarygrass	8-10	4	6
Timothy	6-10	3	5
Switchgrass	16-20	6	6
Indiangrass	12-16	6	6
Big Bluestem	10-16	6	6
Eastern Gamma Grass	10-16	8	8
Birdsfoot Trefoil	6-10	4	6
Red Clover (1st grazing)	¼ - ½ bloom	2	--
Red Clover (2nd grazing)	¼ bloom	2	8
Alfalfa 4/ (1st grazing)	Full bud	2	--
Alfalfa 4/ (2nd and 3rd grazing)	¼ bloom	2	10
Crownvetch	8-10	3	6

Table 1.

1/ Grass and legume mixtures should be grazed in a manner that favors the dominant or desired species.

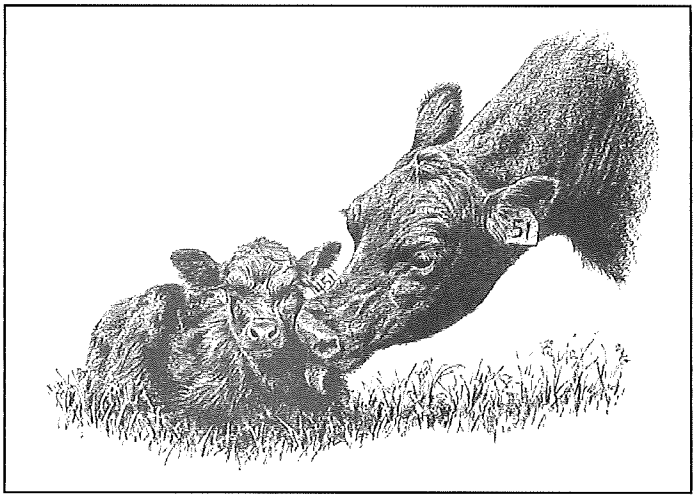
2/ Height is average height when leaves are lifted in vertical position.

3/ At end of growing season, minimum regrowth is the critical factor that determines end of grazing except on pastures grazed only in fall and winter. When a grazing period ends, there should be photosynthetic residual remaining adequate to support vigorous regrowth. Less regrowth may be beneficial if frost seeding or interseeding will be accomplished prior to the next grazing season.

4/ The last harvest of alfalfa, for pasture or hayland, should be made 35-45 days prior to the time when the first freeze normally occurs.

5/ In a rotational grazing system, spring grazing can be initiated when cool season forages have approximately 75% of their height as shown above. Livestock will need to be moved more rapidly until they are in a paddock where forage has grown to the desired height.

6/ If forages are exceeding the "Begin Grazing" heights consideration should be given to making hay or mowing these paddocks.



Grazier's Math

(also available as an excel worksheet)

Worksheet 1: Determining paddock number and size and total acres needed for a specific number of grazing animals.

Step 1. Daily feed consumed by the grazing herd.

Type animal	*Number*	*Weight*	*Total weight*	*% intake*	*Daily forage required*
Beef cows, average milk			=	3.0 %	=
Beef cows, high milk			=	3.5 %	=
Calves			=	3.0 %	=
Bulls			=	2.5 %	=
Stockers Replacement hfrs			=	3.0 %	=
Ewes, dry			=	3.0 %	=
Ewes, lactating			=	4.0 %	=
Nursing lambs			=	3.0 %	=
Rams			=	3.0 %	=
Other			=		=
				Total # daily forage DM* intake	

Step 2. Determine amount of forage required, adjusting for utilization rate (see worksheet guidelines).

Step One →		= Lbs standing forage DM needed daily →	
Utilization rate → *(worksheet guidelines)*			

Step 3. Determine Lb DM per acre.

Estimated lb DM per inch per acre *(worksheet guidelines)* →		X height in inches →		= Total lb DM per acre →	

Step 4. Determine acres needed daily.

Step Two →		= Acres needed per day →	
Step Three →			

Step 5. Determine paddock size.

Acres needed per day →		X number of days (on paddock) →		= Acres per paddock →	

Step 6. Determine number of paddocks.

Rest period *(21-42 days, see guidelines)* _____ + No. of days on paddock _____ →		= Number of paddocks →	
Number of days on paddock → *(This should be consistent with the value used for utilization rate from the worksheet guidelines)*			

Step 7. Total acres required for a specific number of grazing animals.

Step 6 →		X Step 5 →		= Total acres needed →	

(also available as an excel worksheet)

Worksheet 2: Determining the number of animals for a specific size of grazing system.

Step 1. Determine number of paddocks.

Rest period *(21-42 days, see guidelines)* _____ + No. of days on paddock _____ →		= Number of paddocks →	
Number of days on paddock → *(This should be consistent with the value used for utilization rate from the worksheet guidelines)*			

Step 2. Determine paddock size.

Pasture size →	acres	= Acres per paddock →	
Step One →			

Step 3. Determine acres available per day.

Step Two →		= Acres per day →	
Number of days on paddock →			

Step 4. Determine lb DM per acre.

Estimated lb DM per inch per acre → *(worksheet guidelines)*		X height in inches →		= Total lb DM per acre →	

Step 5. Determine lb DM available per day.

Step Four →		X Step Three →		=lb DM available per day →	

Step 6. Determine lb DM consumable per day.

Step Five →		X Utilization rate (guidelines) →	%	=lb DM consumable per day →	

Step 7. Daily feed consumed by the grazing herd.

Type animal	*Number*	*Weight*	*Total weight*	*% intake*	*Daily forage required*
Beef cows, average milk			=	3.0 %	=
Beef cows, high milk			=	3.5 %	=
Calves			=	3.0 %	=
Bulls			=	2.5 %	=
Stockers Replacement hfrs			=	3.0 %	=
Ewes, dry			=	3.0 %	=
Ewes, lactating			=	4.0 %	=
Nursing lambs			=	3.0 %	=
Rams			=	3.0 %	=
Other			=		=
				Total # daily forage DM* intake	

Step 8. Determine adjustment ratio for grazing herd in Step 7.

Step 6 →		= Adjustment ratio for herd →	
Step 7 →			

Step 9. The adjustment ratio provides a basis on which to make changes in animal numbers for stocking the system.

A ratio less than 1 indicates a need to consider reducing animal numbers proportionately.

A ratio greater than 1 indicates an opportunity to increase animal numbers to better use the forage Worksheet Guidelines

Utilization rate guidelines

Rotation Schedule	Utilization Rate (full season)	Utilization Rate (spring growth)
Continuous grazing (1 pasture)	30-35%	30-35%
14 days or greater (2-4 paddocks)	35-40%	40-50%
6-8 days (3-7 paddocks)	45-55%	50-55%
2-3 days (6-15 paddocks)	55-60%	55-60%
Daily (25-35 paddocks)	60-70%	55-60%
2 times per day (45-60 paddocks)	70-75%	55-60%

Utilization rate should follow these general rules:

During rapid spring growth: For 4 paddocks or fewer, utilization rates can be higher in the spring than during the rest of the season because of rapid growth.

For 5 or more paddocks, utilization rates should be lower in the spring than during the rest of the season to keep the rapidly growing forage from getting ahead.

Season long: With short grazing periods and long rest periods, higher utilization rates are possible.

Season long: With long grazing periods and less rest, more leaf area should be left so lower utilization rates are necessary.

Rest period guidelines

During rapid growth: 20 days may provide adequate rest for plant recovery.

During summer growth: 40+ days may be needed for adequate plant recovery.

Season-long rest interval: 30-35 days is the basic recommendation for planning purposes.

Estimating forage availability

Estimated lb dry matter per inch per acre for forage type and pasture condition.

		Pasture Condition	
Forage type	**Fair**	**Good**	**Excellent**
Smooth brome + legumes	150-250	250-350	350-450
Orchardgrass + alfalfa	100-200	200-300	300-400
Mixed pasture	150-250	250-350	350-450
Bluegrass + white clover	150-250	300-400	450-550
Tall fescue + legumes	200-300	300-400	400-500
Tall fescue + nitrogen	250-350	350-450	450-550

Note: forage height is measure as natural plant position (leaves are not stretched or extended).