



Pasture Worksheet for Rotational/Stocking Grazing Systems

[Note: Use a separate worksheet for each livestock class and type (stage of production)]

Class/Stage of Production: _____

Step 1: Estimating Forage/Pasture Demand

Forage/pasture demand is the amount of dry matter from forage/pasture required to feed the herd for one day. Producers can use this worksheet whether their animals are on pasture 100% or grazing 30% of DMI during the grazing season. Producers may use this worksheet in conjunction with the NOP Dry Matter Demand Calculation Worksheet. Producers should use the highest pasture DMI calculated over the grazing season when pasture demand is at its greatest. This will provide a buffer and make sure enough pasture is available during the grazing season. USDA, Natural Resources and Conservation Service (NRCS) uses the rule of thumb that grazing (rotational) animals need to have daily access to forage that is approximately 4% of their live weight (2.5% intake, 0.5% trampling loss, 1% buffer). This figure can be adjusted up if animals require more DMI due to size and/or milk production or down, if animals will receive supplements (grain and hay) during periods of low production.

Line A	Average Weight of Animals (lb)	
	Estimated DMI¹ (as % of Body Weight)	
Line B	% BW/100	
	Daily Pasture DMI required for each animal¹ (lb DM/head/day) = Line A x Line B or Pasture DMI from DMI Calculation Worksheet	
Line C		
Line D	Number of animals	
Line E	Total Forage Demand (lb/day) = Line C x Line D	

EXAMPLE: Dairy Cows, Lactating (continued from DMI Worksheet Example)		
Line A	Average Weight of Animals (lb)	1300
	Estimated DMI¹ (as % of Body Weight)	
Line B	% BW/100	3.42
	Daily Pasture DMI required for each animal¹ (lb DM/head/day) = Line A x Line B or Pasture DMI from DMI Calculation Worksheet	
Line C		44.46
Line D	Number of animals	125
Line E	Total Forage Demand (lb/day) = Line C x Line D	5557.5

¹You can use the pasture DMI amounts calculated through the DMI Calculation Worksheet. (For example, from the NOP DMI Calculation Worksheet, the greatest pasture DMI over the grazing period for the lactating dairy cow herd was 31.51 lb. 31.51 lb pasture DMI divided by the herd average weight of 1300 lbs equals 2.42%. Add 1% to account for trampling loss and as a buffer. The final % body weight is 3.42% or a total of 44.46 lb of daily pasture DMI).

Abbreviations used on this page: DMI = dry matter intake, lb = pound(s), BW = body weight

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Step 2: Estimating Forage Supply/Pasture Mass

This is the amount of forage/pasture dry matter that is predicted to be available. Actual pasture growth rates are extremely variable. Producers may use this worksheet initially for planning purposes and then can use the worksheet again with actual forage height measurements.

(OPTION 1) For every inch of forage height in a pasture above a 2-inch residual, the following DM is available per acre:

Density	Pounds per Acre per inch*
Low	150-200
Medium	200-250
High	250-300
* Varies with plant density and species	

Line F	Pre-grazing forage height (in)	
Line G	Post-grazing forage height (in)	
Line H	DM lb/acre/inch (from Option 1 table)	
	Forage Supply (DM; lb/acre/rotation)¹	
Line I	Line F x Line G	
¹ Or you can use the NRCS Forage Availability Estimate		

(OPTION 2) USDA, NRCS Forage Availability Estimates:

Hay Yield (tons/acre/year)	Forage Availability (lb/acre/rotation)
4.5	1800
4.0	1600
3.5	1400
3.0	1200
2.5	1000
2.0	800

EXAMPLE:

Line F	Pre-grazing forage height (in)	8
Line G	Post-grazing forage height (in)	2
Line H	DM lb/acre/inch	250
	Forage Supply (DM; lb/acre/rotation)¹	
Line I	Line F x Line G	1500
¹ Or you can use the NRCS Forage Availability Estimate		

Abbreviations used on this page: NRCS = Natural Resources and Conservation Service, DMI = dry matter intake, lb = pound(s), in = inches, DM = dry matter

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Step 3: Select Residency Period

This is the amount of time livestock will remain on a particular paddock. NRCS recommends 1-2 days for lactating dairy cows, dairy sheep and goats, and growing steers; 3-7 days for all other livestock. NRCS also recommends that to maximize harvest efficiency, producers should use the shortest residency period indicated for the type of livestock operation.

Line J	Residency Period (days)	
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EXAMPLE:

Line J	Residency Period (days)	1
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Step 4: Determine Paddock Size

Paddock size is based on meeting total forage/pasture demand for the number of days of grazing (residency period).

Line E	Total Forage Demand (lb/day)	
Line I	Forage Supply (DM; lb/acre/rotation)	
Line J	Residency Period (days)	
Line K	Paddock Size (acres) (Line E ÷ Line I) x Line J	

EXAMPLE:

Line E	Total Forage Demand (lb/day)	5557.5
Line I	Forage Supply (DM; lb/acre/rotation)	1500
Line J	Residency Period (days)	1
Line K	Paddock Size (acres) (Line E ÷ Line I) x Line J	3.71

Abbreviations used on this page: DM = dry matter, lb = pound(s)

Step 5: Calculate the Number of Paddocks

This is the number of paddocks required based on meeting the longest regrowth interval recommended (i.e., 30 days).

Line L	Regrowth interval (days)	
Line J	Residency Period (days)	
Line M	Number of Paddocks Needed (with a +1 buffer)	

EXAMPLE:

Line L	Regrowth interval (days)	30
Line J	Residency Period (days)	1
Line M	Number of Paddocks Needed (with a +1 buffer)	31

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Step 6: Calculate the Total Number of Acres Needed

Line K	Paddock Size (acres)	
Line M	Number of Paddocks Needed	
	Total acres	
Line N	Line J x Line L	

EXAMPLE:

Line K	Paddock Size (acres)	3.71
Line M	Number of Paddocks Needed	31
	Total acres	
Line N	Line J x Line L	114.86

This worksheet was modeled after/adapted from the Natural Resources and Conservation Service (NRCS)-Wisconsin *Prescribed/Managed Grazing Plan Worksheet*.