Whitemud Watershed District

Prairie Watersheds Climate Program

BMP Rotational Grazing

Required Documentation for Application

- Application form
- Grazing Management Plan
- Professional Assessment Form, signing off Grazing Management Plan

Shawn Cabak from Forage and Livestock Specialist can sign off Grazing Management forms but requires the following:

1. An aerial photo of your rotational grazing/fencing system with a grazing overview.

   You can use Agri-Maps to select the fields you will be fencing and draw up your plan.

   https://agrimaps.gov.mb.ca/agrimaps/

2. A cost breakdown of your fencing cost using the fence plan calculator (Click on excel attachment).

3. Determine your stocking rate/carrying capacity using the stocking rate calculator.

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Calculation of Stocking Rate

The stocking rate is the number of livestock in a given area in a set period of time. Failure to balance the livestock demand to the forage supply will result in over-grazing and a resulting declining in pasture productivity.

Grazing management has three important variables:

- The number of animals in the pasture;
- The length of time in the pasture and;
- The size of the pasture.

These variables are measured by using the Animal Days per Acre (ADA) formula.

Use the following method to calculate the stocking rate for pasture use. In this example a 20 acre paddock is producing 3000 pounds of forage per acre and grazing 600-pound steers.

Step 1. Determine average forage production per acre

This is best calculated as pounds of forage per acre (lbs. DM / acre)
Estimating forage production can be difficult – the two most
important factors are plant height and plant density.

lbs. of forage production per acre = 3000 lbs. DM / acre

Step 2. Determine forage utilization rate – lbs. DM useable forage per acre

The grazing animal should not harvest every pound of forage produced – some must be left behind to ensure vigorous re-growth. The typical utilization rates for Manitoba conditions are 50% giving rise to the "take half, leave half" statement that wise grass farmers live by. Plan for enough margin in your utilization rate to buffer the risk of drought and wildlife feeding.

50% (utilization rate) x 3000 (lb. of forage per acre) = 1500 lbs. (useable forage per acre)

Note: The utilization rate for native pasture should be 50%. The tame pasture utilization rate is 50-75% depending on your fertility package. Remember that a management decision to increase the utilization rate has consequences such as reduced stand life and lower forage production in the future.

Step 3. Determine the livestock forage requirements - Animal Day (AD)

Cattle will consume 1.5 - 3% of their body weight per day on a dry matter basis. The
amount of forage an animal will consume in a day is an Animal Day.

Cow/calf pair is approximately 2.5%. The calf is included with the cow until the calf is approximately 600 lbs. A 1500 lb. cow will consume 45 lbs./day. Use 3.0% for grassers and use the average weight during grazing season. For example if the steer starts at 600 lbs. and will end at 870 lbs., use 735 lbs. as the average summer weight. e.g. (870 – 600 / 2) = 135   870 -135 = 745 lbs.

1500 (lbs.) (cow weight) x   3.0 (% dry matter intake) = 45 lbs/cow/day (Animal Day)

Step 4. Determine Animal Days per Acre (ADA)

Once you know the useable forage per acre and the livestock requirements you can calculate the stocking rate for a particular paddock. Animal days per acre (ADA) is the forage utilization rate divided by the livestock forage requirement (AD).

1500 lbs. (useable forage DM per acre) / 45 lbs./cow/day (AD) = 33 (ADA)

Step 5. Use the ADA to calculate your stocking rate

Remember that the stocking rate is dependent upon the three variables, number of animals per pasture, the length of time in the pasture and the size of the pasture.

20 (acres) x 33 (ADA) / 50 cows (herd size) = 13 (grazing days)

20 (acres) x 33 (ADA) / 10 (grazing days) = 66 cows (herd size)

Calculating the Number of Paddocks Required

Paddocks are required to control the grazing animal and provide adequate time to rest the grazed forage. Generally, the more paddocks the better. Estimate the potential number of paddocks in a grazing system by using this formula.

$$\frac{\text{Days Rest}}{\text{Grazing Days}} + \text{number of animal groups} = \text{number of paddocks}$$

$$\frac{30 \text{ day rest period}}{5 \text{ days grazing per period}} + 1 \text{ animal group} = 7 \text{ paddocks required}$$

Once the number of paddocks have been determined, the grazing days can be adjusted to allow for a longer or shorter rest period. In the above example, 5 days is only the average grazing days per paddock – the actual will vary according to the regrowth rate.

$$\frac{\text{days rest required}}{\text{number of paddocks resting}} = \text{grazing days}$$

Fast growth period
18 days rest = 3 grazing days/paddock

Slow growth period
36 days rest = 6 days grazing days/paddock

*Fast Growth = Fast Moves * Slow Growth = Slow Moves*

Stock Density

Stock density is the number of animals per acre for a grazing period. Increasing stock density requires a shorter grazing period but provides more even grazing and can be used to clean up problem weeds or brush. To determine stock density, divide the total amount of DM forage produced over the season by the seasonal requirements of the animal (cow/calf pair or grasser) being grazed.

20 (acres) x (3000lbs./ac x 50% utilization) / 45 lbs./cow/day = 667 animal days.
667 / 120 days grazing season = 5.5 animals for the summer

STOCKING RATE WORKSHEET

Step 1. Determine average DM forage production per acre – lbs. of forage per acre

pounds of forage production / acre = _____ lbs./acre

Step 2. Determine forage utilization rate – lbs. useable forage per acre

50% (utilization rate) x _____ (lbs. of forage / acre) = _____ lbs. (useable forage / acre)

Step 3. Determine the livestock forage requirements - Animal Day (AD)

_____ (lbs.) (cow weight) x _____ (%) (Dry matter intake) = _____ lbs/cow/day Animal Day (AD)

Step 4. Determine Animal Days per Acre (ADA)

_____ lbs. (useable forage per acre) / _____ lbs./cow/day (AD) = _____ (ADA)

Step 5. Use the ADA to calculate your stocking rate

_____ (acres) x _____ (ADA) / _____ cows (herd size) = _____ (grazing days)

OR: _____ (acres) x _____ (ADA) / _____ (grazing days) = _____ cows (herd size)

PADDOCK CALCULATION WORKSHEET

$$\frac{\text{days rest}}{\text{grazing days}} + \text{number of animal groups} = \text{number of paddocks required}$$

$$\frac{_____ \text{ days rest}}{_____ \text{ grazing per period}} + _____ \text{ number of animal groups} = _____ \text{ paddocks required}$$

$$\frac{\text{days rest required}}{\text{number of paddocks resting}} = \text{Grazing Days}$$

Fast growth period   *Slow growth period*

$$\frac{18 \text{ days rest}}{6 \text{ paddocks}} = 3 \text{ days grazing/paddock} \qquad \frac{36 \text{ days rest}}{6 \text{ paddocks}} = 6 \text{ days grazing/paddock}$$