

Grass Growth Rates and Pasture Management

Posted on July 25, 2022 by [Christine O'Reilly, OMAFRA Forage & Grazing Specialist](#)

One of the unique challenges of pasture management is that the crop is both growing and being harvested (through grazing) at the same time for most of the cropping year. Matching animal demand to pasture supply is an important management skill to make the most of the available pasture and ensure good animal performance. Understanding grass growth rate is critical in successfully matching demand with supply.

Only occasionally do grass growth rate and animal demand align perfectly. More often, grass growth rates either exceed or fall short of daily dry matter demand (Figure 1). In Ontario, grass growth rates in the spring are typically very high and grow much faster than livestock can eat it. When growth rates exceed demand, pastures near the end of the rotation will become severely overgrown, leading to poor pasture utilization and poor animal performance. However, in the summer, hot and dry conditions and grass maturity bring daily growth rates down to near zero and can cause a grass deficit. Without planning during times of slow grass growth, the manager may run out of pasture to feed their livestock.

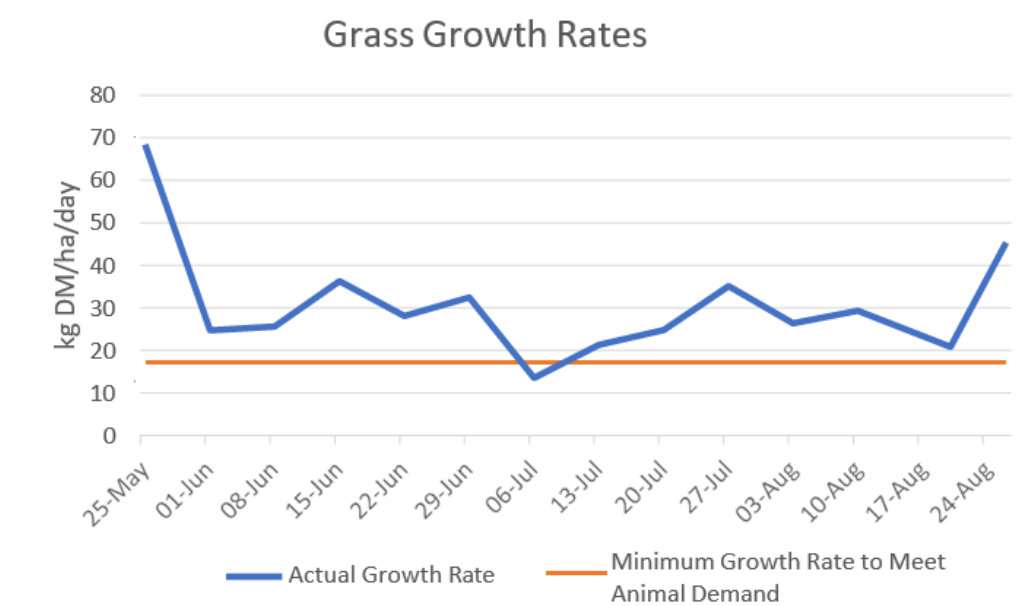


Figure 1. Grass growth rates from a pasture in Kawartha Lakes, ON in 2021

Pasture managers can determine the minimum grass growth rate required to feed their herd or flock. Producers who track grass growth rates and compare them to their minimum required rate can make proactive management decisions to avoid running out of pasture.

Determine Animal Demand

The first step is to know how much forage dry matter the livestock need to eat every day.

For dairy animals, work with your nutritionist to determine the target dry matter intake. Then decide what proportion of this target should come from pasture. For example, Canadian organic standards require that at least

30% of an animal's diet should come from pasture during the grazing season.

For all other classes of livestock, estimate the total dry matter intake based on a percent of body weight (BW). Use the average body weight for the group, then multiply by the intake percentage for that class of livestock from Table 1.

Livestock Class	Forage Dry Matter Intake (% BW/day)	Forage Dry Matter Intake (decimal; multiply this by BW)
Beef, cow	3.0%	0.03
Beef, finishing	3.0%	0.03
Beef, replacement heifer	3.0%	0.03
Beef, backgrounder	3.0%	0.03
Bull	2.6%	0.026
Goat, kid	3.0%	0.03
Goat, meat breed doe	2.5%	0.025
Horse	2.5%	0.025
Sheep, lamb	3.0%	0.03
Sheep, meat breed ewe	2.5%	0.025

Table 1. Forage dry matter intake as a percentage of animal body weight

Either of the above methods will give you a daily animal dry matter intake in lbs (or kg).

Factor in the Land Base

The other factor influencing animal demand on the pasture is the stocking rate. Stocking rate is the average annual number of animals kept on an area of land. To calculate stocking rate, divide the number of animals in the group by the total area they have for grazing. This will give you an average number of animals per acre (or hectare).

Calculate Minimum Grass Growth Rate

To work out the minimum grass growth rate to keep up with animal demand:

1. Determine daily animal dry matter intake as described above for dairy or non-dairy animals.
2. Divide the number of animals by the total pasture area to determine stocking rate.
3. Multiply daily animal dry matter intake by stocking rate to get minimum grass growth rate.

Sample Calculation – Metric	Sample Calculation – Imperial	Your Calculation
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Class of Animals	Backgrounders	Backgrounders
Average Body Weight	340 kg	750 lbs
Dry Matter Intake (decimal from Table 1)	x 0.03	x 0.03
Daily Forage Dry Matter Intake/Animal	= 10.2 kg DM/head/day	= 22.5 lbs DM/head/day
Number of Animals	50 animals	50 animals
Pasture Area	÷ 16 ha	÷ 40 acres
Stocking Rate	= 3.1 animals/ha	= 1.25 animals/acre
Daily Forage Dry Matter Intake/Animal	10.2 kg DM/head/day	22.5 lbs DM/head/day
Stocking Rate	x 3.1 animals/ha	x 1.25 animals/acre
Minimum Grass Growth Rate	= 32 kg DM/ha/day	= 28 lbs DM/acre/day

Table 2. Example Calculations for Minimum Grass Growth Rates

This number provides a minimum grass growth rate required to keep up with animal demand. If the actual grass growth rate falls below the minimum needed, the pasture will run out of grass unless growth rates improve again soon, or management intervenes.

Managing Through Slow Growth Rates

To avoid running out of grass, managers need to slow down the rotation (i.e., lengthen the rest period for the grass). There are a few ways to achieve this, and the right option depends on the severity of the shortfall and the farm's unique circumstances. Options to slow down the rotation include finding additional acres to graze, feeding supplemental forage, and reducing animal demand.

Find additional acres to graze

Taking a flexible approach to grazing management starting at turn-out can provide additional acres as growth rates slow. In spring this means dedicating a smaller area to grazing, and cutting the rest to store as hay, baleage or grass silage. With fast spring growth rates, the cut pasture will be able to regrow in time for grazing in the next rotation. This option can provide livestock with a continuous supply of high- quality feed and reduce the risk of running out of pasture.

Additional acres could be brought into the grazing platform by renting more pasture or grazing annual forages (cover crops) or grain stover.

Feed supplemental forage

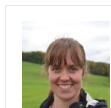
Research shows that producers feed less stored forage if they start supplementing on pasture before livestock run out of grass. Since livestock are getting some of their nutrition from the hay, this allows for slightly longer graze periods in each paddock and longer rest periods for the whole pasture. Waiting to feed stored forage for when the pasture has run out of grass results in feeding more forage overall, which is costly.

Reduce Animal Demand

While the first two options help increase grass supply, reducing demand for grass is another approach to align growth rates with animal needs. Weaning young stock early can lower demand, since their dams will stop milking shortly thereafter and require less feed. Culling open animals, or animals with other undesirable traits results in fewer mouths to feed. Selling young stock early can also lower animal demand on the farm.

Getting the Data

Producers who track grass growth rates and compare them to their minimum required rate can make proactive management decisions to maximize pasture and animal performance. Research is underway in Ontario to make measuring pasture easy to do on farm. Until that project is complete, producers grazing near one of the research sites may be able to use the growth rate data shared on Twitter with #grazingON.



About Christine O'Reilly, OMAFRA Forage & Grazing Specialist

Areas of Focus: - Production and storage strategies to improve the productivity and profitability of forages - Benefits of forages and grazing within cropping systems - Forage production and grazing systems in northern Ontario

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