

Pasture Planning 101

Last year Jane Thornton, Forage Specialist-MAFRD, made a presentation at the Austin Beef and Forage meeting. Here is my interpretation of some of the management practices that were presented by Jane.

Why Do I need a Pasture Plan?

When planning a pasture, the first question you need to ask your self is why I need one? Most times the answer is because I need more forage or more pounds of beef from a limited land base. You have a choice of running your pastures on empty all the time or with some management changes you can run it on full giving you more security and options.

What Grazing System is Best?

Once you have decided that you are going to make a pasture plan the first thing to think about is What Grazing System is Best? There is no right or wrong system; it depends on your resources (soils, climate, and manpower) and your objectives. There are a number of grazing systems: rotational, mob, high density/low frequency, complimentary, twice-over, season long, continuous, deferred rotation etc. Are any of these systems incorrect or wrong? In general the answer is no, for your farm it might be a maybe, because they have been developed for particular climates, soils, management inputs, infrastructure etc. Your silver bullet when planning a grazing system for your operation is knowledge and experience. You need to understand the basic principals of animal needs/behaviour and plant ecology.

When looking at any of these rotational systems, the result is better utilization of the forage. Rest between grazing allows for more forage per acre to be produced giving you better feed efficiency/increased stocking rate which translates into more pounds of beef per acre.

Grazing Principals

As mentioned there are many grazing systems to choose from and they all follow 4 basic principles. The beauty of learning principles is that they work in any situation. A principle is a [law](#) or [rule](#) that has to be, such as the laws observed in nature e.g. Newton's law of gravity. The principles of such a system are understood by its users as the essential characteristics of the system, or reflecting a system's designed purpose, and the effective operation or use of which would be impossible if any one of the principles was to be ignored. There needs to be an intelligence capable of conceiving the end and realizing that certain actions must be taken to achieve the goal.

1. Determine carrying capacity. This is the balance between animal demand and plant demand. Balancing plant needs with animal demand is the first place to start. Start by estimating your forage production per acre. You can do this by clipping and weighing forage production, imagine the number of bales that pasture could produce, use a pasture stick etc. How you determine production is up to you but you need this estimate to determine the stocking rate. Often producers only talk about the number of animals but when calculating carrying capacity you need to take into account how long the animals will be in a paddock, how big the animals are and how many there will be. If we are overstocked it doesn't matter how many divisions we put up, the system will fail or at the very least never reach its full potential.

Carry capacity is a calculation of total usable forage and forage requirement of the livestock. This calculation enables you to determine how many head the pasture can carry and how many days the livestock can graze that system.

2. Distribute animals evenly. This principal puts equal grazing pressure on all plants not just some. Not only is it important to equal out grazing pressure on the plants but good livestock distribution helps to recycle nutrients where they are needed. Manure dropped near water sources or on bare ground is wasted money. Each piece of land needs to be assessed as not all land is grazeable. Locating salt and mineral to less favoured areas can draw the animals to areas that they normally don't spend that much time. This will help with distribution as the animals will spend time grazing on their way to and from the water and salt. Jim Gerrish's work showed that cattle go from water to grass to salt. They then chew their cud.

3. Allow effective recovery after grazing. Grazing is a cost to the plant, we only see the above ground cost, but the real story is going on underground. When plants are grazed not only is the above ground part reduced but so is the root mass. When this happens, the plants store-house of food and ability to gather water and nutrients is reduced.

How quickly a plant recovers from grazing will depend on how severely it is grazed. If you leave some leaves behind after grazing, the plant recovers more quickly. Effective rest can only take place when the plant has the ability to re-grow. Fencing can allow you to provide guaranteed rest. You will have control of when, where and how long the cattle are in each paddock. With no divisions, favoured areas and plants get grazed repeatedly. By splitting of the pasture in half favoured areas are guaranteed 50% rest. Dividing into 4 paddocks gives guaranteed 75% rest. Note: If you are over-stocked you can over-graze even on a rotational grazing system because you will be forced to come back to a pasture before they have recovered. We grow about 60 to 70 percent of our forage in the period from May to July 15th. If you are stocked correctly, you will feel you have way too much forage in June. However, if you stock to this high production period

you will be short on the back side of the season. Trust your calculations and if you have underestimated your forage production or it is a particularly good growing year you will be able to graze later into the fall or use it in the spring.

4. Avoid or minimize grazing impact during vulnerable periods. Vulnerable periods are times when you will hurt the plant directly or hurt the resource that the plant uses.

Wet soils can cause significant damage. The damage here can be physical damage from the hooves shearing the plant or roots or from the pressure of the hooves which cause compaction of the soil.

Early spring is another vulnerable period. Plants derive their energy/sugar from the process of photosynthesis. Grazing too early in the spring is at the time when the root reserves are at their lowest levels. New leaves in the spring are started using root reserves and photosynthesis doesn't start until the plant reaches the 3.5 leaf stage. Sometimes you can't avoid early grazing. To minimize the negative effects you can look at: grazing stockpiled pasture, supplemental feed, skim grazing, rotating the pastures you start on each spring, or give the pasture a very long rest after spring grazing.

Everyone is looking for that one grass or one grazing system that is going to turn everything around. The Silver Bullet is not a thing it is YOU. Learn everything you can about forage, ecology, cattle and economics. For more information on grazing systems and management you can go the Manitoba Forage and Grassland web page at mfga.net or click on [Forage & Grassland Reference Manual](#).

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