# Precision Flock Management
## Managed Grazing

## When To Open and Close the Gate

### The Challenge for Experienced Graziers

*Managed Grazing* is a method of managing animals and forage, of allocating pasture, and of setting fencing to limit the amount of feed. *Managed Grazing* requires the practical application of sound grazing principles and also sound judgments about forage amounts and grazing time. This factsheet series will provide the fundamental principles and potential of using *Managed Grazing* in sheep production.

Two of the most fundamental decisions about *Managed Grazing* are:

- When should you introduce sheep into a paddock?
- When should you take them out?

### To make *Managed Grazing* decisions you need to know the following:

- Available forage per acre.
  - o Expressed as pounds of forage dry matter per acre (pound DM/acre)
- Number of sheep in the grazing flock.
- Average weight per animal.
- Calculate the total weight of the flock in that paddock.
  - o For example, 100 ewes averaging 175 pounds = 17,500 pounds of sheep in that paddock
- Estimate of the daily Dry Matter Intake (DMI) per animal.
  - o Use a DMI estimate that includes some allowance for trampling, for un-weaned lambs and residual forage. This value would be higher than DMI values found in standard reference texts.

***Key Message:*** **a reasonable DMI for pasture = 5% of body weight**

### Goals for this Fact Sheet:

- To determine how to allocate forage — to decide when to introduce sheep into a paddock and when to take them out.
- To understand the concept of *Stocking Density* and how to use it effectively.
- To identify practical tools that support good decisions about *Managed Grazing*.

### Practical Points for Good *Managed Grazing*

Good *Managed Grazing* is all about allocating feed in a paddock; in other words you are determining how to best use the forage available for your sheep.

- Temporary fences are used to adjust paddock size to fit sheep nutritional needs.
- Place the temporary fence so that the flock's expected DMI matches the available forage for a predetermined limited number of days.
- Stay in Phase II growth. (For information on growth phases refer to PFM *Managed Grazing* #1)
- Always leave enough residual forage. Avoid grazing down into Phase I growth.
- Protect re-growth. Move sheep off the paddock before the forage begins to produce new leaves and shoots.
- Back-fences are required. Sheep must not consume re-growth.

- Water and minerals move with the sheep. Provide these in each paddock.
- Water sources that force sheep to walk long distances or poorly-placed permanent or centralized water sources can cause extreme variability in forage growth in a paddock.


Hosford, AARD

## Stocking Density

*Stocking Density (SD)* is defined as the pounds (lb.) of animal/acre. SD is sometimes referred to as *Grazing Pressure.*

- Example: 50 lambs @ 60 lb. body weight = 3,000 lb.
  - o If lambs are confined on 1 acre, SD = 3,000 lb./acre
  - o If lambs are fenced into ½ acre, SD = 6,000 lb./acre
  - o If lambs are fenced into ¼ acre, SD = 12,000 lb./acre
- Another example: 350 ewes @ 150 lb. body weight = 52,500 lb.
  - o If these ewes are fenced in a 10-acre paddock, SD = 5,250 lb./acre
  - o If these ewes are fenced in a 1-acre paddock, SD = 52,500 lb./acre
- Stocking density allows valid comparisons of grazing systems over time in the same farm and also between farms with different numbers of animals and different types of livestock.
  - o For example, if a neighbour grazes cattle at 2,000 lb./acre and you graze sheep at 25,000 lb./acre, you can use SD to compare the effects grazing on forage growth, weed control, and changes in soil fertility, and then make future grazing decisions by adjusting your SD.

**There are advantages and disadvantages to different *stocking densities.***

**Higher stocking density:**

- Better and more even forage utilization. Reduces forage waste.
- Better management of residual forage.
- Better and more even distribution of manure.
- Reduced plant selection. Allows good management of less-palatable forages.
- Allows planting of forages with widely differing palatability.
- Increases animal production *per acre,* but not per animal.
- Reduces invasion of weeds. May eliminate some weeds.

High stocking densities may also allow a *tread-in* method of reseeding. Tread-in re-seeding is surface broadcasting seed onto moist ground and having the sheep push the seed into the ground by intensive hoof action. Animals are then removed from the paddock to allow the fragile seedlings to emerge and grow. The success of this method in Alberta is usually limited. It depends on time of year, soil moisture for seedling growth, seed depth, stocking density as well as how competitive existing forage may be. In the drier areas of Alberta it is usually not an effective way to establish perennials in the summer months. In moister areas of Alberta uneven rains and competition from existing forage stands also result in limited success.

***Key Message:*** **Successful tread-in seeding requires a Stocking Density of at least 25,000–30,000 lb./acre.**

***Key Message:*** **Many *Managed Grazing* operations routinely graze livestock at Stocking Densities of 30,000 lb./acre or higher. For example, this SD would equate to 200 ewes at 150-lb in one acre.**

**Low stocking density:**

- Give sheep the luxury of selecting forages based on preference and palatability
- Provides the highest quality feed to sheep because they can select the best feeds and leave the rest. Increases forage waste.
- Increases variability of grazing impact — some areas of a paddock are grazed to the ground while other areas contain high grass.
- Allows the sheep to create trails in paddocks, adding to inefficient forage utilization and manure distribution.
- Gives weeds a chance to grow and thrive in a paddock. Allows weeds to go to seed.

## When to put the sheep into a paddock

There are a few key pieces of information you need to know before you open the gate:

1. Estimate flock body weight
   - = number of animals x average body weight.

2. Estimate DMI.
   - *Rule of thumb:* start with 5% of body weight to account for trampling. This is not as much dry matter intake as forage disappearance. May include a cushion amount for unweaned lambs.

3. Decide on the number of days in the paddock.
   - Maximum of 5–6 days to avoid grazing re-growth. This length of time depends on local conditions, especially soil moisture.
   - Calculate the amount of DM needed by the flock for that number of days.

4. Estimate the Total Amount Mass of forage in the paddock. In this case the term 'mass' means the pounds of forage.

5. Decide on the Residual Mass. This is the target amount of forage remaining in the paddock when the sheep leave.

6. Estimate amount of Available Mass of forage that will last your desired number of days.

7. Position (set) the temporary fence so that the enclosed area contains the appropriate amount of Available Mass of forage for your desired number of days.

8. Introduce sheep into the paddock.

9. Remove sheep when forage mass is reduced to the residual amount.

10. Review the results:
    - If you reach the target number of days and there is still too much remaining forage, then you did any or all of the following:
      - o Under-estimated original amount of Total Mass
      - o Over-estimated DMI
      - o Over-estimated weight of the sheep
    - If you run out of forage too soon; that means in fewer days than your target number of days, then you may have may have made calculations incorrectly on any or all of the following:
      - o Over-estimated the original amount of Total Mass
      - o Under-estimated DMI
      - o Under-estimated weight of the sheep

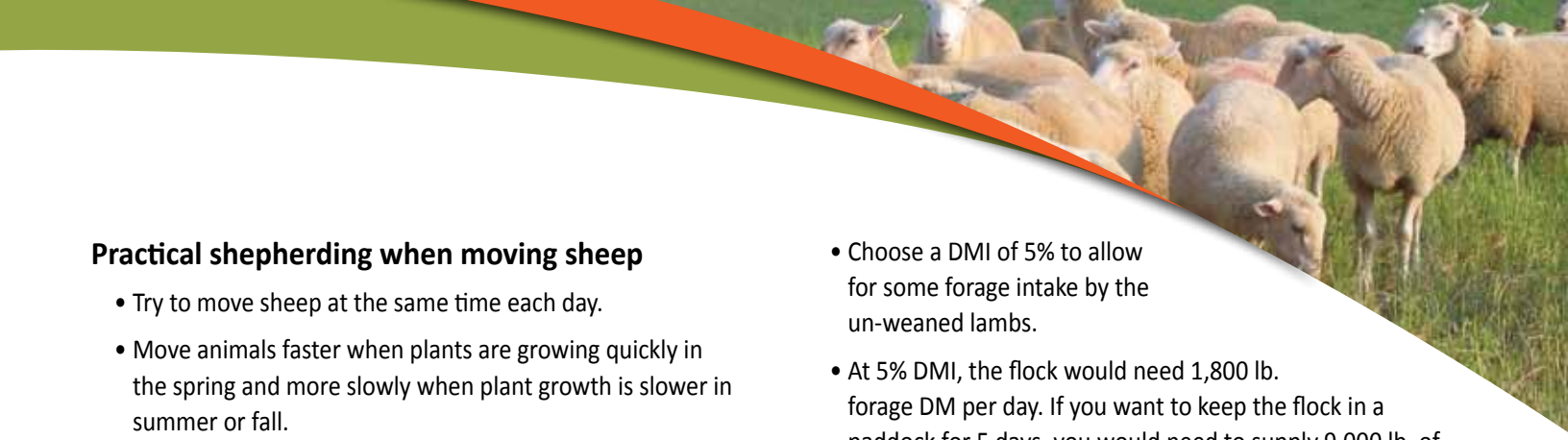
Learn from experience to adjust your estimates, and the next time set the fence with this new knowledge and experience.

After moving sheep through a few paddocks so that you gain experience, you will become quite proficient at estimating all these variables. This is a little like learning any skill. You keep doing it and you will get better and better.

## When to remove the sheep from a paddock

Carefully consider and observe which of the following comes first:

- Residual forage mass is reached (generally 800–1,000 lb./acre).
- Maximum of 5-6 days in that paddock to avoid grazing re-growth.
  - o This length of time is greatly influenced by local conditions, including type of forage, soil moisture, heat units, etc.
  - o Careful observation is essential to determine when forages begin sending out new green growth. Protect this re-growth!



## Practical shepherding when moving sheep

- Try to move sheep at the same time each day.
- Move animals faster when plants are growing quickly in the spring and more slowly when plant growth is slower in summer or fall.
- Sheep learn quickly. After you move sheep a few times to new paddocks the sheep will learn about new feed and flow more easily from paddock to paddock taking less effort to move them.
- If you have no paddock ready for the sheep, consider using a sacrifice paddock where sheep can be held or fed stored feed until the next paddock is ready for them.
    - A *sacrifice paddock* is a field where you can put sheep without being concerned about overgrazing. In fact, there are situations where you can use overgrazing to your advantage. As examples: a sacrifice paddock could be a field that you plan to replant, or an area overrun with weeds that you want to clean up, or even a dry lot. There are many possibilities that can constitute a sacrifice paddock.

## Make allocating forage work on your farm

You will have to do the calculations for your farm, taking into account your geographic area, growing season, type of forage, etc., but it will provide you with benefits in the short- and long-term. Here is an example of the calculations that will give you an idea of how to make *Managed Grazing* easier.

- You have a flock of 225 ewes in early lactation raising 150% lamb crop (338 lambs) Ewes average 160 lb. Therefore, the total weight of the adult flock is 36,000 lb.
- Choose a DMI of 5% to allow for some forage intake by the un-weaned lambs.
- At 5% DMI, the flock would need 1,800 lb. forage DM per day. If you want to keep the flock in a paddock for 5 days, you would need to supply 9,000 lb. of available forage DM for those 5 days.
- The paddock contains a Total forage mass of 2,500 lb./acre. If your target residual forage is 1,000 lb./acre, then this paddock contains 1,500 lb. available forage/acre.
- With a forage requirement of 9,000 lb. for 5 days (=1,800 lb./day x 5), the flock would need 6.0 acres for those 5 days (= 9,000 ÷ 1,500).
- You should set your cross-fence at 6 acres.
- If you allocate too little acreage, then in 5 days the sheep will graze the forage into Phase I.
- If you allocate too much acreage, you will have extra forage at the end of 5 days. But if you keep the flock in that paddock for additional days, there may be a risk of sheep grazing the quick re-growth of your best forages.

**The benefits of *Managed Grazing* can include a significant cost reduction in feed, often healthier animals, and a productive use of forage and land. While it initially requires some effort to figure out how to make this work for your operation, it becomes easier with practice and application. With time you can reap the rewards of becoming an experienced grazier.**

---


Author: Woody Lane, Lane Livestock Services, Roseburg, Oregon
Review: Susan Hosford, Sheep Industry Specialist, Alberta Agriculture & Rural Development
Stephanie Kosinski, Forage Specialist, Alberta Agriculture & Rural Development
Grant Lastiwka, Grazing, Forage, Beef Specialist, Alberta Agriculture & Rural Development
Photo: Hosford, AARD


**For more information:**
Alberta Sheep & Goat Grazing Manual
http://www.ablamb.ca/producer_mgmt/sheep_mgmt.html
http://www.agriculture.alberta.ca/livestock/sheep&goats


**Your partners in building better lambs**

ALMA Alberta Livestock and Meat Agency Ltd

Alberta Lamb Producers

Government of Alberta