

Grazing Management

Introduction

Grazing management—controlling the grazing habits of animals on pasture—has a serious effect on:

- the species makeup and long-term survival of pasture plants;
- the nutrient value of pasture plants; and
- overall pasture yield.

Grazing management has a greater effect on the pasture than any other part of the pasture management program. Poor grazing management can lead to profit loss for farm businesses

that depend on pasture as a key source of feed for their farm animals.

Overgrazing

What causes overgrazing: allowing animals to regraze plants before they are able to replace root reserves used for regrowth. Overgrazing reduces root reserves, which leads to fewer leaves and a weakened root system. Although juicy and tasty to grazing animals, these young, recovering plants must be protected. Also, overgrazing can lead to the loss of some plant species in the pasture and the loss of forage yield.



Table 1. Leaf Removal and Its Effect on Root Growth

| Amount of Leaf Volume Removed (by percentage) | Amount of Root Growth Stoppage (by percentage) |
|--|---|
| 10–40 | 0 |
| 50 | 2–4 |
| 60 | 50 |
| 70 | 78 |
| 80–90 | 100 |

All root growth stops for 12 days with 80% leaf removal and for 18 days with 90% leaf removal.

Source: Dietz 1989.

Overgrazing also causes plants in the pasture to recover slowly. The rule of thumb for how long to keep animals in a pasture is to “take half and leave half.” This means:

- noting the height of plants whenever you put animals to pasture for grazing; and
- removing the animals from grazing when they have eaten the forage down to about half its height.

This management tool allows plants in the pasture to regrow more rapidly. Table 1 shows how the percentage of leaf removal affects plant regrowth.

Plants use their leaves to capture sunlight for photosynthesis. The more leaves a plant has, the more sunlight and energy it can generate. A plant that has not lost most of its leaves to grazing will have enough leaf area left to recover rapidly. An overgrazed plant with no leaves, however, has no way of getting energy from the sun. The plant has to work solely off root reserves for its recovery.

Plant species such as Kentucky bluegrass, Bermuda grass, and common white clover can tolerate heavy, close grazing. Because they have leaves growing low and close to the soil surface, these plants are left with

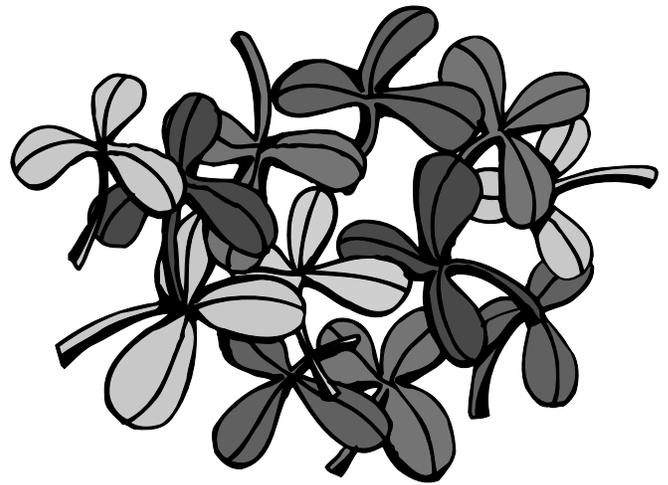


adequate leaves to recover even after heavy, close grazing. Tall, growing pasture plant species, such as orchardgrass, tall fescue, timothy, and red clover, have little leaf area left after heavy, close grazing. Their recovery, therefore, takes longer and relies more on stored root reserves.

As a pasture manager, it is also important to consider the direction of your pasture's slope in relation to sunlight. Because pasture slopes with a southwest exposure usually receive extra warmth from the sun, the plants in these areas are the first to turn green (green up) in the spring. Quick to find these areas, grazing animals readily eat the newly emerging tender leaves of these plants. Animals will stay around these green-up areas and continue to graze on the emerging plants because little to no grazing is available elsewhere in the field. This will eventually lead to the overgrazing of the area. The reason: plants use up their root reserves as they work constantly to replace leaves. Uneven green-up areas such as these need to be protected.

Undergrazing

Forage losses can also occur when pastures are underused. Undergrazing reduces forage quality and yield. The stage of growth of forage plants is the most important factor affecting forage quality. As plants—including grasses and legumes—mature, the percentage of stems and fiber increases as the percentage



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of protein and digestibility decreases. This means that animals get less nutritional value from mature plants. In addition, the high fiber content of mature plants makes them tougher and therefore less palatable.

Plants are considered to be vegetative when they are in the leafy stage to the boot stage. The boot stage takes place when the



Table 2. Forage Nutritional Values at Various Stages of Growth

Red Clover

| Stage of Growth | Leafy | Bud | Early Bloom | Late Bloom |
|-----------------|--|-------|-------------|------------|
| Nutrient | Percentage of Nutrient (dry matter basis) | | | |
| Protein | 29.30 | 20.50 | 19.50 | 14.00 |
| Phosphorus | 0.32 | 0.25 | 0.21 | 0.15 |
| Potassium | 3.48 | 3.17 | 2.14 | 1.39 |

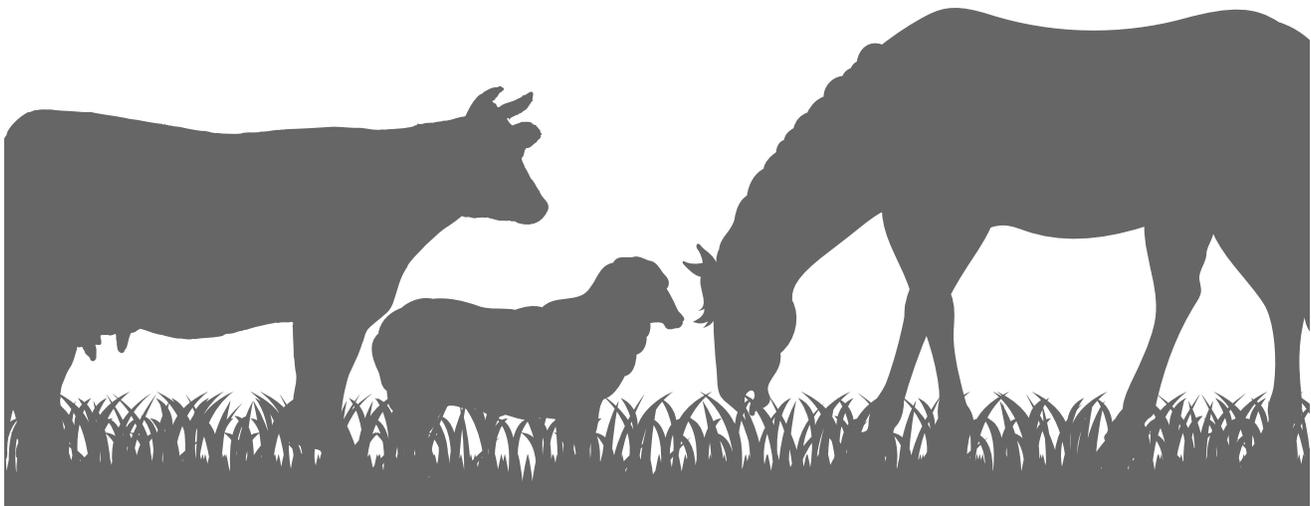
Orchardgrass

| Stage of Growth | Leafy | Boot | Head | Bloom |
|-----------------|--|-------|-------|-------|
| Nutrient | Percentage of Nutrient (dry matter basis) | | | |
| Protein | 33.90 | 17.60 | 10.10 | 7.80 |
| Phosphorus | 0.41 | 0.30 | 0.23 | 0.20 |
| Potassium | 3.90 | 2.86 | 2.47 | 1.87 |

Source: Blaser et al. 1986.

seed head of the grass plant is just beginning to emerge. Table 2 shows how the nutritional value of forage declines as plants mature from being vegetative to producing seed heads. If you are going to turn excess pasture growth into hay, do not allow grasses to mature beyond the boot stage. Do not let

legumes go beyond early bloom. The early bloom stage occurs when less than one-half of the legumes in the field are in bloom. Pastures with grasses and legumes nearing mature stages can be “flash grazed,” in which the pasture is heavily stocked with grazing animals very briefly. Brief, heavy grazing



will delay the plants from maturing. An alternative to flash grazing is to machine harvest the excess growth in the pasture as hay and store the forage for feeding at a later date.

Undergrazing will reduce the overall yield and quality of forage from the pasture. Grazing animals often avoid weeds, less desirable plant species, and plants in and around manure piles. These uneaten plants as well as other undesirable plants will mature and produce seeds that spread throughout the pasture, contributing to the loss of production of the field. In addition, as plants mature, their rate of growth slows down. Another forage loss can occur if a mature plant is allowed to go to seed and reproduce. This sometimes causes the plant's growth system to slow down or even to stop for the rest of the season. A shutdown can lead to the death of some annual, biennial, and short-lived perennial plants.

Grazing Management Techniques

Managing for even grazing should be the goal for all pasture managers. The most effective tool for promoting even grazing is the fence. Some excellent temporary fences are available. Temporary fences are economical and adaptable and come in many different forms, such as electrified tape, wire, and netting. Ideally, animals should not graze in a single area of a pasture

Learn to be a visual observer of the animals on pasture.

for more than 3 days. Beyond this period, overgrazing of the regrowth of plants that were eaten earlier can occur. After 3 days, you can restrict animals from regrazing by using portable electric fences to exclude them from the area, or you can move the animals to a new pasture until the grazed area recovers.

In continuously grazed pastures where animals are free to move around all areas, promote even grazing by forcing the animals to move around the entire pasture. Animals tend to hang around favorite areas of the pasture for one reason or another. You can move animals by moving their water, feed, or salt block sources. Dragging the pasture to break up and spread out manure piles can help to get rid of areas the animals avoid. Mowing maturing plants, regularly, helps to prevent overmaturing and helps to control the spread of weeds.

Learn to be a visual observer of the animals on pasture. Animal grazing habits will vary by species. While horses, cattle, and sheep prefer to graze forage, goats prefer to browse woody plants. Most animals prefer





not to graze when it is hot. The heaviest period of grazing is 2 to 3 hours after sunset.

If you are a new and inexperienced manager, keep records of your pastures during grazing and rest periods. Evaluate how the pastures are holding up. Look for signs that the plants in the pasture are being set back or are getting ahead of the animals. Your records can help you determine the

pasture's stocking rate, which is the number of animals the pasture can support at any one time. If after 3 days of grazing the pasture still has plenty of forage, the stocking rate of animals is too low. This means that for the size of pasture and the amount of forage not enough animals were grazing. On the other hand, if the pasture is more than 50 percent grazed—if your animals



have reduced the height of the plants by more than half—and the animals have not been in the pasture for the planned 3 days, the stocking rate is too high. Recordkeeping for pastures does not have to be anything complicated or time consuming. You only need a few notes on how you see the pasture at key periods during grazing.

Summary

Grazing management does more than just assure that your grazing animals have a good quality source of feed. Grazing management protects your investment in the forage stand. Overgrazing is the primary reason that forage stands in pastures thin out and ultimately stop being productive. Thinned out pastures are open to weed invasion as weeds take advantage of the open spaces on the soil surface. Once established there, weeds will begin crowding out the forage species by competing for sunlight, water, and nutrients. Weeds are typically less tasty and nutritious than forage species and are more difficult to dry when making hay. The resulting loss in forage quality from the thinned, weed-infested stand means you will have to restore the pasture.

Pastures are often last on the list of management priorities on many farms. Proper grazing management can significantly reduce feed costs, improve animal performance, and boost farm income. Good grazing management requires keeping track of the growth stages of pasture plants and of how long it takes plants to reach the best height for grazing as well as recording which pastures have been grazed. These factors help managers to plan the overall grazing management program. A skillful manager knows when to put animals in a pasture, when to remove them to another area, and when to expect they can return to the pasture.

References

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Issued in furtherance of Cooperative Extension work, acts of May 8 and June 30, 1914, in cooperation with the U.S. Department of Agriculture, University of Maryland, College Park, and local governments. Thomas A. Fretz, Director of Maryland Cooperative Extension, University of Maryland.

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P2002

