



GRAZING #6

Subject: Prescribed Grazing for Horse Pastures

Date: October 2009

Grazing Horses

Horses are an important part of Michigan's livestock industry. The estimate of equine in Michigan on June 1, 2007, was 155,000. That compared with 130,000 on June 1, 1996, the last time an inventory of equine was done in Michigan. This growing population of horses is used for entertainment, sporting events and companionship. Whatever their purpose, horses need good pastures.

There were 35,000 equine operations in 2007, up from 28,700 in 1991. Almost two-thirds of the inventory was located on places with fewer than 10 equine. About 63 percent of the equine operations were on land zoned agricultural; the remainder was in areas zoned residential or other. Equine were more geographically dispersed than other livestock breeds; they were located in significant numbers in virtually every county. Horses often exceed dairy in Right to Farm complaints for odor and manure management. Working with equine enthusiasts on conservation planning has many challenges.

Horses are selective grazers, which affects the productivity of a pasture. Horses prefer to eat young, immature plants and will graze some areas of pasture down to the bare ground. Horses are biting top grazers. The clipping action the horse uses to eat is capable of cutting plants much closer to the ground than sheep, beef, or dairy animals. Horses tend not to graze in areas where they defecate. The spot grazing effect can be so intense that large spots, and even entire pastures, are almost destroyed by grazing too short, too often and too frequently.

Damage to pastures also occurs as the horse's natural traveling patterns and flipping hoof action cause trampling damage by cutting off forage or uprooting whole plants. Trailing and loitering contribute to damage. The only way to avoid spot grazing and trampling damage is to not graze. A better alternative is for the equine enthusiast to control grazing and trampling.

The first grazing plan decision the equine enthusiast must make is whether to use the pasture for exercise purposes only or as a major part of the nutritional program. Most horses benefit from being outside regularly to exercise. Small turnout areas, runs, and exercise areas are not usually feasible to manage as pasture. However, they should be managed to maintain some vegetative cover if soil erosion and runoff are a concern. If the desired goal is to utilize the pasture as a feed source, a grazing plan is necessary to match the potential forage value with the correct carrying capacity for horses.

Development of a grazing plan requires an understanding of the forages that provide good grazing for horses as well as the grazing behavior of horses. Equine enthusiasts need to consider pasture management much as they do horse management. Proper management of the pastures includes grazing management and maintaining or improving the forage plants.

Numerous physical characteristics need to be considered in developing and managing good, safe horse pasture:

1. A dense, relatively smooth turf;
2. Absence of harmful or risky objects such as old wire, stumps, rocks, and junk;
3. Safe, non-cutting fences;
4. Absence or very low incidence of poisonous plants and absence of thorny brush that can cause physical damage and mane or tail entanglement;
5. Year long forage availability, as feasible;
6. Nutritious and palatable forage;
7. Area large enough to provide the pasture quantity and quality needed, and therefore generally large enough for normal exercise needs and grazing management such as rotational grazing paddocks;
8. Area with fresh, clean water;
9. Area with shade during the summer;
10. Area with shelter from adverse weather such as storms and cold;
11. Area relatively free of parasites;
12. Area free of marshes and swamps.

Maintain or Improve Pasture Condition

Horse pastures are not different from pastures for cattle or other livestock. The same forages are used and management techniques are the same although those techniques may be applied differently. Ideal pasture plans are designed for production over a long growing season. No single forage can be productive all season, maintain a high palatability, and be sustained in the pasture. The pasture species mix combined with grazing management can maintain or improve pasture condition.

A pasture mix selection will depend upon the objective of the pasture. For pastures where primary nutrition comes from the forage, then the cool season grass legume mix is preferred. A variety of grasses, sod forming and clump, can be used. When pastures are used for exercise, and the nutritional needs of the horse are met through grain and hay in the barn, then the pasture species selection should focus on the sod forming grasses such as Kentucky bluegrass, timothy, and perennial ryegrass.

Tall fescue is not considered safe for pregnant or nursing mares, but is satisfactory for others. The endophyte toxicity can be reduced by keeping the fescue mowed and not allowing seed heads to form. Endophyte free and “friendly” endophyte varieties of tall fescues are available and should be used. These are often included in pre-blended pasture mixes designed for horses. Alsike and other white clovers tend to cause a condition called photosensitivity dermatitis. This affects the horse’s liver and unpigmented body areas. Red clover is occasionally infected with a fungus, especially when moist conditions persist, that irritates the horse to salivate excessively resulting in “slobbers”.

Permanent pastures are usually preferred by horse owners for forage and exercise. Generally, permanent pastures containing both legumes and grasses provide the highest yields of forage through out the growing season. Temporary pastures of annual crops are not commonly used in horse grazing management. Under extreme conditions, horses should be kept in sacrifice areas and supplemented with hay and/or grain according to dietary needs.

Pasture Management for Nutrients and Manure

Pastures need nutrients just like horses need a balanced diet. Grazing management alone is sometimes inadequate at maintaining or improving pasture condition. Other management practices such as adjusting the soil fertility are needed. Soil testing should be conducted at least every three years. Sample the pastures in no more than 20 acre segments unless larger portions of the grazed land have identical soils, topographies and crop history. This will give the baseline to compare the nitrogen and phosphorous thresholds and possible nutrient applications in the future. The goal for optimum forage growth and performance are correct soil pH and available nitrogen, phosphorus and potassium.

Soil pH- grass pastures: 6.0; grass-legume pastures 6.5

Nitrogen- grass pastures: 150-200 pounds/acre, Continuous grazing requires the higher N rate.

Applying fertilizer and lime based on soil test recommendations will result in maximum forage production, and provides economic and environmental benefits as over-application of nutrients is prevented. Phosphorus and Potassium are applied at maintenance levels to replace that removed by consumption of the forage.

Cool season grasses make their major growth during May, June, and through about mid-July. Growth is nearly at a standstill during hot weather and dry soil conditions that normally occur from mid-July through August. As the weather starts to cool in late August, and the soil moisture improves, growth picks up again and continues into October. Adequate nitrogen must be available during these two periods (spring to early summer and late summer to fall) for best growth and top grass yields. Perennial warm season grasses start growth about the first week of May. Early spring nitrogen fertilization can stimulate growth of undesirable cool season species.

Manure nutrients are recycled nutrients that came from the pasture and are returned directly to the pasture. Manure management becomes critical to best utilization of these nutrients. Dragging the pastures and limiting pasture sizes will enhance nutrient cycling by improving the appropriate manure distribution and nutrient uptake. To further manure distribution and nutrient uptake, rotate the facilities or tanks where the animals drink and hay rings or feeders within pastures or paddocks.

While pastures are idle and weather is hot and dry, scatter manure with a drag or chain harrow. Dragging the pastures to redistribute the manure piles coupled with hot, dry weather will help kill off parasites in the manure. Drag pastures when horses will not be returning to that pasture for at least 30 days to allow for forage growth and parasite death. Horses should be on a wormer administered on a regular schedule. Having a worming schedule is important to parasite control especially when moving horses to new pastures.

Pasture Management to Control Defoliation and Allow Forage Recovery

Horses graze approximately 18 hours per day. The grazing pattern of horses is a result of the arrangement and functioning of the horse digestive tract. It is easy to understand how small pastures can become overgrazed in a short time, and all pastures can become overgrazed if management practices are not applied.

Management plans should benefit both horses and the pasture forage. Design grazing plans to prevent plants from maturing or reduce heading. Mature pasture will not meet energy or protein requirements of horses. Plans can include rotational grazing of paddocks on a schedule that allows for plant regrowth and use a residency time that facilitates adhering to the minimum grazing height at which grazing in that paddock is terminated. To maintain the most opportunity for forage harvest and maximize the benefits of rotational grazing, temporary fence options should be included in the grazing plan.

Two key plant characteristics that impact forage regrowth after harvest. Forage plants survive the stress caused by defoliation in part, due to storage of large quantities of sugars, starches, and proteins in specialized storage organs. Plants have different storage organs depending on whether grasses or legumes. In general, the crown and lower stems of forages are important storage organs. Stored energy reserves are important, but the plant's active growing parts are essential for growth in the spring and regrowth after grazing. These active growth parts exist as small budding protrusions on crowns of legumes and inside leaf sheaths of the stem bases of grasses. It is by grazing management that storage organs and active growing areas are maintained.

Pasture plants that are grazed too short will have reduced leaf area and recover more slowly to produce less yield for the season. Close grazing or cutting may remove or injure stolons, crowns and stem bases. The ability of the plant to store energy is limited and will affect plant regrowth and can result in poor persistence. Damage can also occur from overgrazing which removes the buds, excessive treading especially in wet soils, and exposure to severe winter weather. Grazing management should be designed to prevent plants from being over grazed. Frequent shifting of the salt, water, and any portable shade structures will also help maintain pasture stands.

Because horses are capable of biting from the top to extremely close to the ground, the forages benefit from management of grazed residual forage height and recovery periods. Rotational grazing plans require the use of one or more pastures. Large pastures may need to be subdivided into two or more paddocks using temporary or permanently placed fencing. Horses are moved as a group from paddock to paddock based on monitoring the grazed forage height and quantity of ungrazed forage remaining.

It is difficult to recommend a pasture size requirement for horses. How much forage a horse can eat depends on age, size, health and use. Horses consume 1.5% to 3% of their body weight in feed per day. Pasture quality can be maintained at stocking rates of two or more acres per horse with limited management. It is important for horse performance as well as forage growth to implement higher levels of management that will maintain or improve pastures.

One herd one paddock rotational grazing works well as long as all the horses get along. Depending on aggressive behaviors herd numbers should be adjusted to ensure that all horses have adequate and stress free access to forage and water. Extreme trouble makers need to be removed and possibly isolated.

It may be necessary for the landowner to mow the paddocks when the vegetative growth rate is faster than horse intake rate. Mowing and haying the pastures that are rapidly maturing will keep plants in the vegetative stage. This also helps control weeds. After grazing, pastures may need to be mowed to promote uniform leafy regrowth.

Keeping in mind that horses are destructive to pastures in many ways, options to rotational grazing include switchback (two paddock) systems, use of dry lots, and by limiting the time per day horses have access to the pastures. Equine enthusiasts need to be realistic about the limitations of land available for grazing and the number of horses they intend to pasture. Small areas, unable too to maintain vegetation, are better used as drylots.

Pasture is often the turn out area for the horse each day regardless of plant height. Small acreage horse farms may not be able to implement a rotational grazing system. Equine enthusiasts should then do the best management possible for both forage quality and quantity and horse nutrition. Horse stocking rates should be planned to maintain 70% or higher vegetative cover on the pastures. Restricting grazing by limiting grazing time also helps maintain vegetative cover. Rutgers Cooperative Extension suggests that one horse can be maintained on one-half acre of pasture, if turn out time is limited to fewer than three hours per day. Longer turnout times require more acres per horse per day.

Using Sacrifice Areas and Dry Lots in Pasture Management

The term “sacrifice area” is sometimes used to define a permanent location. Sacrifice areas are often adjacent to barns. As a permanent location, sacrifice areas are just that, areas with no vegetation, where space has been sacrificed from forage production. The term “drylot” is also used to describe these permanent locations. Drylots have little or no vegetation. The primary function of a dry lot is exercise.

Drylots provide an opportunity to move horses off the pasture to protect pastures from being overgrazed. Drylots can be used in a switchback type rotational grazing system, horses will occupy the drylot to allow forage recovery and then switch back to the pasture. A typical drylot would contain water sources, feeders, and mineral supplements. They are designed as heavy traffic/ use areas. Depending on the number of horses per acre of drylot, manure should be removed at the appropriate frequency, and more frequently during peak fly breeding periods.

A paddock sacrifice area is also an area where the horse can be kept when pasture conditions are unsuitable. The choice of paddock used as a sacrifice area may change yearly. Using a paddock as a sacrifice area requires some advanced planning. Damage to the paddock is expected and replanting will be needed. Some graziers utilize low producing paddocks as the sacrifice paddock, plant an annual crop for additional forage, and replant the following spring. With short term use of the sacrifice paddock, overseeding in the fall or spring may be all that is needed.

Moving the hay rings or feeders, portable water tanks, and mineral supplements within the sacrifice paddock helps to control damage to the vegetation and manure accumulation. Both drylots and sacrifice areas need to be designed and managed so that there is no loss of soil or runoff of manure nutrients and sediments. Gutters and diversions can be used to keep clean water out of the drylot.

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