Establishing and Managing Horse Pastures

Fact Sheet FS368





Cooperative Extension

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Establishment

A lush pasture adds scenic beauty to your farm and nutritional value for your horses. Pastures can provide exercise and a low-cost feed source, but unless productive, they provide only exercise. To achieve both goals, they must have a good start. These steps will help to establish a new pasture or renovate an old one:

Soil Test – Soil tests should be performed on pasture every three years. Soil tests are the best guide for correcting soil pH and soil fertility needs. County Extension Offices have soil sample kits and instructions. Soil pH should be between 6.2–6.5. Lime reacts slowly with soil and is best applied several months before seeding, therefore test soil early.

Apply Lime and Fertilizer – Apply according to soil test results. If large lime applications are needed, disc fertilizer in after plowing field. If using nutrient sources such as manure, apply before plowing or other soil preparation. To start a vigorous crop of forage, correct lime and nutrient levels must be established before seeding. Annual fertilizer (nitrogen) applications are required for maintenance. Soil test again the year after establishment. Lime may be needed every 3 to 4 years, so test soil at this interval.

Prepare a Good Seedbed – Most forage seeds and seedlings are small and require a fine, firm seedbed. Finely worked soil allows close seed-to-soil contact for germination and close root-to-soil contact for early growth. A firm seedbed allows close depth control for shallow seed placement. Loose and cloddy seedbeds waste seed and do not sustain early growth well.

Buy High Quality Seed – Use species and varieties which are adapted to the area. Your County Extension Agricultural Agent can supply appropriate information. Avoid shopping for "bargain" seed. The cost difference between "bargain" and high-quality seed is very small when the entire expense is considered.

Use a Good Seeding Mixture – Usually it is best to keep a mixture simple: a highly productive grass, a legume, and Kentucky bluegrass. Bluegrass produces a resilient sod that "heals" well when cut by horses' hooves. The other grass provides feed when the bluegrass goes dormant in the summer. Legumes supply protein and reduce the need for nitrogen fertilization. Management becomes more difficult as more species are added. On highly variable soils, however, more complex mixes can be advantageous. Some species grow where others do not, ensuring coverage of the entire area.

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Grasses to Choose From

- Kentucky bluegrass – makes rapid growth in spring and fall, but is dormant in summer months. Tolerates frequent grazing.
- Smooth bromegrass – forms a loose sod, but can become coarse and stemmy. Mow for best utilization. Does not tolerate frequent grazing, requires rotational grazing.
- Orchardgrass – matures early, so mow it to keep it palatable. Tolerates frequent grazing better than some species.
- Timothy – regrows slowly after grazing. Use only with other grasses. Does not tolerate frequent grazing, requires a regular schedule of pasture rotation. Not preferred as a pasture species.
- Tall fescue – withstands heavy traffic. An internal fungus, called an endophyte, may cause reproductive problems for mares. Endophyte-free and "friendly" endophyte (does not produce toxins) tall fescue varieties are commercially available for pasture use. If you opt to use endophyte-free tall fescue seed, make sure it is certified as such.
- Perennial ryegrass – palatable and nutritious. It is not very winter hardy, re-seeding may be necessary in more northern locations. Endophytes are also found in some perennial ryegrass cultivars. When purchasing perennial ryegrass, buy endophyte-free cultivars for pasture use.
- Reed canarygrass – is most useful and palatable when immature; it may become very coarse later. Mow before seedheads appear. Tolerates wet soils, but even low alkaloid varieties are not as palatable as other pasture species. May be the only option for very wet soils.

Legumes to Choose From

- Ladino clover – a giant form of white clover that associates well with tall grasses, but is somewhat susceptible to drought.
- Red clover – use only newer, more disease-resistant varieties. They persist for 3 to 4 years, while older varieties last only about 2 years. The excessive salivation condition known as slobbers is associated with a fungus found in all clover when under environmental stress (i.e. drought, excessive rain, heat, etc.).
- Birdsfoot trefoil – a good pasture legume, but difficult to establish. Leave 3 to 4 inches of growth for recovery after grazing.
- Alfalfa – presents management problems in pastures and is not typically used for pastures. Use only where 5 weeks are available for recovery after rotational grazing.

Suggested Seeding Mixtures for Different Soil Types

Species	Rate/Acre	Species	Rate/Acre
Well Drained Soils		Moderately Drained Soils	
Kentucky bluegrass	10lb	Kentucky bluegrass	8lb
Orchardgrass	6lb	Timothy	5lb
Ladino clover*	1lb	Ladino clover*	1lb
Poorly Drained Soils		Grasses Alone (Requires Nitrogen Fertilizer)	
Kentucky bluegrass	10lb	Kentucky bluegrass	10lb
Reed canarygrass	8lb	Timothy	4lb
Ladino clover*	1lb		

*On light sandy soils, 2 or 3 pounds of red clover may be substituted.

Seeding – Late summer seedings often do better than spring seedings because of cooler weather after seedlings emergence. Usually there are fewer weed problems in late summer as well. Seed from mid-August to early September, or as early in the spring as possible. Use a seeding technique which covers seed with only ¼ to ½ inch of soil. Leaving seed on the soil surface will result in a poor rate of germination. Bandseeding, drilling, or use of corrugated-roller seeders are better methods than surface broadcasting. Nearby farmers may be able to help small horse farms with seeding.

Control Weeds – Early weed growth will ruin a pasture. Either use herbicides or mow pastures to a 3 inch height as often as needed. If using herbicides, read and follow all label instructions for proper climate appliations and grazing restriction; some may require a pesticide license to apply.

Grazing – Do NOT begin until there are 8 to 9 inches of growth. The root system must be well established or horses will pull the plants out and all the time and money put into renovation or establishment will be lost.

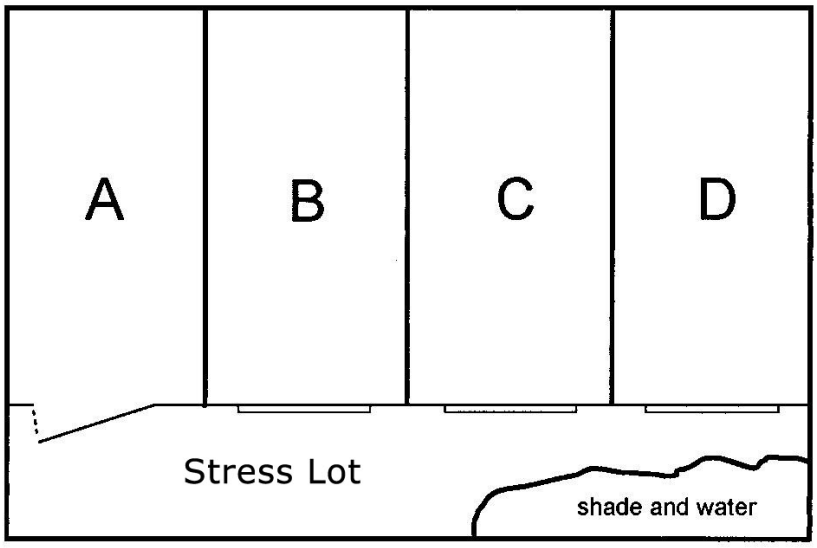
Management

Horses graze selectively, often eating one kind of plant and passing over others. This leaves unutilized areas which become overly mature and unpalatable and can eventually outcompete the most palatable species. Good management can reduce these problems and make the pasture more useful.

Delay Early Grazing – A common cause of pasture failure is grazing too early. This can occur by grazing a new pasture too soon or in any pasture in early spring. Keep animals out of a pasture until there is at least 8 to 9 inches of growth. Young plants are easily damaged by horses' hooves earlier, and the root systems are not sufficiently developed to prevent the whole plant from being pulled out as horses graze. Avoid use of the pasture in early spring when soil is soft or when there has been a lot of rainfall. Sod will be cut by hooves and compacting of the soil will cause additional damage. Wait until soil is dry and firm before beginning spring grazing.

Fertilize Annually – To keep a pasture productive, fertilize it annually based on your soil test. County Extension Offices have soil test kits and instructions. Base fertility applications on test results and retest every 3 to 4 years. Fertilizing without knowing the nutrient needs of the soil can cause problems to the pasture and the environment. Lime may also be needed to adjust soil pH. The soil test will provide this information. Take horses out of the pasture when liming or fertilizing and keep them out for several days or until after a ½ inch of rain. The most appropriate times for making these applications are in the spring before grazing begins, or in the fall after grazing ends. In pastures with grasses only, nitrogen can be applied just after a grazing period in a rotational system, or in continuously grazed pastures to stimulate growth for the next 5 to 6 weeks.

Manage Grazing – Many pastures are overgrazed, but few are undergrazed. Either situation is undesirable. Unfortunately, seasonal growth variations also contribute to these problems. Overgrazing is probably the more common problem. As a guideline, it takes approximately 1 acre of pasture to support one horse nutritionally for an entire grazing season. Frequently, there are two or more horses on less than 1 acre which is when hay and/or other feedstuffs are necessary. The available forage gets "eaten into the ground," and these areas become exercise or dry lots. Not much can be done except to provide more space and more hay. Undergrazing results from having too few animals in a pasture. Since horses are selective grazers, part of the pasture is not eaten, becomes coarse and stemmy, and is wasted. The solution is to encourage the animals to consume the forage while it is palatable. Confine the animals to a smaller portion of the pasture; grazing it for a short time. When the grass is consumed in that area down to a 3 inch height, move them and let them graze a different part of the pasture. This is a good time to mow the first area, drag the manure so it will dry, apply fertilizer, and allow the area to recover. This is called rotational grazing and is one of the most efficient ways to manage a pasture. A series of small pastures may also be used. In effect, each area is grazed for a short time, then allowed several weeks to recover. The length of time needed for pasture grasses to recover depends on numerous variables including weather, precipitation, soil type and grass species. The last areas to be grazed may need early mowing to keep them from getting too mature and becoming palatable. The time for grazing any one pasture is determined by the amount of forage available, the size of the area, and the number of horses.



A system for rotational grazing

The accompanying diagram shows a system for rotational grazing. For this system, a farm owner would follow the steps below.

- Put the animals in pasture A and allow them to graze until the forage is consumed to about 2 to 3 inches. Leave the gate between pasture A and the stress lot open so horses have access to shade and water. Stress lots are termed such because they are an area of no or low grass cover that can be used to house horses during weather conditions that are not optimal for grazing (i.e. too wet, etc.). Some areas may not be well-grazed, particularly around droppings.
- When pasture A is grazed down, close its gate and open the gate to pasture B, repeating the procedure as in pasture A.
- While the horses are in pasture B, mow and fertilize pasture A, spread manure using a type of drag, and let pasture A recover.
- When pasture B is grazed down, move all the horses to pasture C.
- Continue to rotate the horses from one area to another throughout the grazing season.

This system is much more efficient than constantly grazing the entire pasture for a whole season.

Mow Pastures – Regular mowing is one of the least expensive (but most useful) practices in pasture management. Mowing an entire pasture after a period of grazing removes the unused forage and allows all of the plants to start new palatable growth. Previously undergrazed areas will be grazed after clippings. Many weeds will be controlled, and manure can be spread to dry. Mow several times during the grazing season.

Weed Control – Mowing will help to control weeds that appear in pastures. However, it will not remove all weeds. Those which persist in spite of mowing may need to be controlled with herbicides. County Extension Agricultural Agents have information about herbicides to be used in these cases. It is very important to identify all weeds before choosing an herbicide, as not all herbicides work on all weeds. Remove animals from the pasture when herbicides are used and keep them out for the time specified on the herbicide label. When using any pesticide, read and follow instructions on the label. The phone number for your Rutgers Cooperative Extension county agricultural agent may be found in the blue pages of your telephone directory, under County Government (or visit njaes.rutgers.edu).

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