



FORAGE FIRST™

WHEN YIELD AND QUALITY MATTER™

P R E M I U M

Horse Pastures

Products and Pasture Management





Seed Selection

Triple Crown Horse Mix

Triple Crown is formulated to meet the high energy and nutritional demands of performance, pleasure and workhorses. Its combination of grasses and legumes will provide strong yields of high-energy feed for your active horse.



Triple Crown was developed for season-long grazing and hay production. It contains grazing alfalfa with deep-set crowns to tolerate animal traffic and a combination of grasses that provide high quality forage. It's quick to establish and excels on well-drained soils (above 6.5 pH).

35% Tetraploid Perennial Ryegrass
20% Timothy
20% Grazing/Traffic Tolerant Alfalfa
15% Kentucky Bluegrass
10% Festulolium

- Planting time: early spring and early fall when weather is cooler and moisture is more reliable.
- Seeding rate of 30-40 lbs./acre.
- Produces high quality forage within 45-60.

Mare and Foal Horse Mix

Mare and Foal is a combination of grasses that's very palatable for high consumption and provides sufficient dry matter necessary for a healthy equine digestive system. It's a premium blend of elite grass varieties that produce a high level of forage and high level of nutrition.



- Endophyte Free!
- Primary use for horses who don't require high protein.
- Very persistent, tolerates heavy traffic and has excellent recuperative ability.

50% Orchardgrass
25% Timothy
15% Festulolium
10% Kentucky Bluegrass

- Planting time: early spring and early fall when weather is cooler and moisture is more reliable.
- Seeding rate 30-40 lbs./acre.

Jump Start Pasture Mix

As its name suggests, Jump Start is a quick-establishing mixture that is perfect for overseeding existing fields or use in short rotation pastures. It is highly palatable and very responsive to fertilization. With adequate moisture, provides early spring and fall forage, while maintaining solid summer performance. It is highly palatable. It excels on moderately drained soil and performs well on poorly drained sites.

- Endophyte Free!
- Excellent for pasture rejuvenation

25% Tetraploid Perennial Ryegrass

25% Diploid Perennial Ryegrass

20% Intermediate Ryegrass

20% Festulolium

10% Tetraploid Annual Ryegrass

- Planting time: early spring and early fall when weather is cooler and moisture is more reliable.
- Seeding rate 30-40 lbs./acre.
- Overseed rate 15-20 lbs./acre.

4 Seasons Horse Pasture Mix

As its name implies 4 Seasons Horse Pasture Mix provides year-round pastures for horses in the southern US where heat stress provides challenges to maintain good forage pastures for your horses. Count on 4 Seasons Horse Pasture Mix to provide close grazing tolerance and excellent performance.

22% Daniella Bermudagrass

74% Jump Start

4% Crescendo Ladino Clover

- Planting time: Early fall from September 15 (Extreme Northern area of AL, GA, MS, TX) to November 30.
- Seeding rate 50 lbs./acre.



Daniella Bermudagrass

Created for a great horse pasture, Daniella is an improved forage type Bermudagrass with good vigor and drought tolerance, good fall density making for better ground cover and reduced frost kill. It has demonstrated a high resistance to Fusarium diseases and Bermuda Smut Mite.

- Improved forage performance.
- Increased wear tolerance.
- Better durability.
- Low thatch.
- Close grazing tolerant.
- Medium to fine texture and good dark green color.

Planting Rate

- New Pasture: 15 lbs./acre.
- Repair bare spots: 2 lbs./1000 sq. ft.

Planting Directions

- Plant in late spring/summer when soil temperatures reach 65 degrees.
- Prepare a fine, firm, clean seedbed that has been tilled to a depth of 2-4 inches.
- Broadcast or direct seed at the recommended seeding rates.
- Seed should be planted no deeper than 1/8-1/4 inch and for best results field should be rolled after planting to assure good seed to soil contact.
- Fertilize and lime according to soil test recommendations, or consult your local extension agency for appropriate recommendations.
- Grazing should not be allowed until pasture is 8-10 inches in height and should not be grazed lower than 3-4 inches.
- Allow 1.5-2 acres of pasture for each mature animal (1000-1200 lbs.).

Why Pasture Your Horses?

By nature, horses are grazing animals, so it is the most natural way to raise the healthiest animal and provides significant benefits for both the horse as well as the owner.

Among these are:

- Additional exercise and nutrition help reduce respiratory and behavioral problems and improved bone growth and hoof quality.
- Costs associated with maintaining good health may also be reduced.
- Pasturing reduces the amount of bedding required and stall maintenance.

Take this tip from an expert, "Ideally, up to 60% of the horse's day should be spent grazing."

What makes an ideal horse pasture?

Let's start with the size of the pasture.

Rule of Thumb: Allow two acres for each horse.

If you use an intensive pasture management and rotational grazing program you may be able to reduce the size to one acre per horse. (Source: Bob Lemen, Grand Rapids, MN <http://www.lemen.com/>)

As you plan the pasture, take into consideration the landform and the type of soil.

- It should be free open and without obstacles such as large rocks, low hanging branches & sudden dropoffs.
- The soil should be able to supply high quality feed. If it isn't already in the right condition, you'll have to treat it before planting
- Once planted, the ground cover should provide a soft cushion to prevent stress on limbs and it should be attractive.

If managed wisely, a pasture will be both an economical source of high-quality feed as well as a healthy place for horses to exercise.

If managed poorly or ignored, a pasture can soon become nothing more than an overgrazed weed patch that not only has little nutritional value, but may even contribute to horse health problems.



Soil Fertility

Soil is the foundation of a healthy pasture, so it's essential that you know what condition your foundation is in before planting. More than likely the land you're turning into a pasture was once used for other purposes.

Soil that is deficient in the proper nutrients or out of pH balance, cannot produce forage that has high nutritional value. The only reliable way to know what the soil needs – and doesn't need- is to test, don't guess.

The best times to soil test is in the fall and early spring, before last year's crop residue starts to breakdown. If fertilization has already taken place, you should wait at least 12 weeks before testing, in order to get an accurate reading.

When taking samples, use clean tools. Pesticide or fertilizer residues on the tools, or in the container, will create misleading results. Take 15 to 20 cores from each field where the soil type and topography are fairly uniform and the field has been uniformly managed with regard to the crop grown or fertilizer applied. Limit the maximum area of each sample to no more than 20 acres. Collect a sample by making a random zig-zag pattern over the entire field. Mix the cores thoroughly and then submit about a pint of soil to the lab.

Rule of Thumb: Soil test every 2-3 years. Take soil from the top 3 to 6-inches.

Benefits of Fertilizing

Fertilization enables the plant to develop denser and deeper roots which allow it to:

- Absorb more nutrients and moisture.
- Develop denser foliage to increase the absorption of sunlight.
- Increases the plant's ground cover which inhibits the growth of weeds.

The Pasture's Building Blocks – N, P, K

Nitrogen (N) - the first number on a bag of fertilizer

Nitrogen is critical for the maximum growth of cool season grasses. An adequate supply of nitrogen is associated with vigorous vegetative growth and a plant's dark green color. Nitrogen is very mobile in the soil. It moves from the soil into the plant as part of the growth process and seeping water can leach it out of the soil over time. So it must be continually replenished.

The preferred sources of nitrogen are Ammonium nitrate, either granular or prilled, or Urea.

If Ammonium nitrate is the carrier it can be used at anytime without the concern of volatilization. Urea is best used in the spring, when temperatures are lower. If it's applied when temperatures are hotter, high levels of volatilization may occur. (http://ohioline.osu.edu/b760/b760_3.html)

Heavily grazed pastures with high yielding forages require approximately 100-150 pounds of actual Nitrogen/Acre/Year.

Rule of Thumb: Three applications of Nitrogen at 50 lbs./Acre/Year each.

- Spring and Fall.
- Summer if rains are present to promote growth.

Phosphorus (P) - the second number on a bag of fertilizer

Plants require phosphorus for steady, strong growth. As growth occurs, phosphorus is used to efficiently use sugars and starches and to maximize photosynthesis in the young roots, stems and leaves. When adequate phosphorus is in the soil you will generally see rapid growth, earlier maturity and frequently the quality of vegetative growth is improved. ([http://www1.agric.gov.ab.ca/\\$department/deptdocs.nsf/all/agdex920?opendocument](http://www1.agric.gov.ab.ca/$department/deptdocs.nsf/all/agdex920?opendocument))

Rule of Thumb: 40-60 lbs./Acre/Year or based on the soil test.

Potassium (K) - the third number on a bag of fertilizer

Potassium is required for overall strong plant growth, increased disease resistance and increased winter hardiness.

Rule of Thumb: 250-300 lbs./Acre/Year or based on the soil test.



What if soil pH is not ideal?

For the pasture to reach its full nutritional potential, the soil's pH range should be between 6.0 to 7.0.

Legumes require a higher pH than the grasses, due in part to the rhizobia activity in the root nodules. The rhizobia have a higher pH requirement for nitrogen fixation than the plant has for growth.

Within grasses, the warm-season grasses are more tolerant of low pH values than the cool-season grasses. But there are important reasons to maintain a pH of 6.0 to 7.0 even if you are planting a warm-season grass.

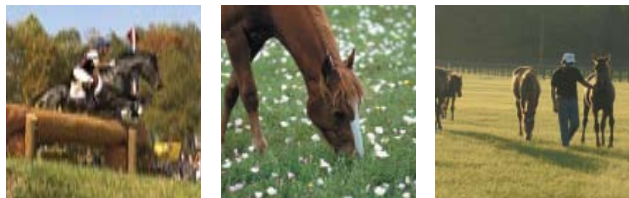
- Most nutrients that a plant needs are available within the 6.0 to 7.0 pH range.
- Some problem weed species are more competitive at lower pH values.
- Over-seeded winter annuals, especially clovers, require a higher pH for optimum growth and production.
- Nitrogen fertilizer is a major acidifying force in pastures, therefore high nitrogen rates can rapidly decrease the soil pH. <http://hubcap.clemson.edu/~blpprt/pasture/grazing.html>.

Balancing the pH

Fall is the best time to boost pH levels by applying lime because it allows the soil to neutralize, which takes from 4 to 6 months.

Horses and Fertilization

Horses do not need to be removed from the pasture when applying granular fertilizer, however care should be taken to not spill fertilizer where a horse could eat enough to be toxic. Make sure to follow the manufacturer's instructions.



Weed Control

The presence of weeds and brush in a pasture often indicates poor pasture management, typically either over-grazing or inadequate fertilization. Because they compete with desirable pasture species for water, sunlight and nutrients, their presence reduces both the longevity and nutritional value of a pasture stand.

The best weed control is achieved by maintaining a dense healthy stand of grasses and legumes through proper fertilization, cutting and pasture rotation.

Once broadleaf weeds take root in a pasture, chemicals such as 2,4-D, Banvel® or Crossbow® may be used to take control. Keep the following in mind:

- Chemicals are non-selective, they kill beneficial broadleaf plants – like legumes and clover - in addition to noxious plants such as multi-flora rose and brambles.
- To control broadleaf weeds in a legume pasture, you must control them the year before and plant the legumes the following year.
- For the chemical to be effective, weeds must be actively growing when it's applied.
- Round-Up® can be used to remove difficult perennials, however Round-Up® will take out beneficial plants at the same time and will require reseeding of those areas.
- Use pesticides as spot treatments only. Do not broadcast them throughout the pasture.
- It's best to apply herbicides in early spring before horses are turned out or late fall after they are no longer grazing.

Caution:

Use pesticides only when necessary and at the recommended dosages and timing to keep residues within the limit set by the law. Before using any pesticide, Read the label and follow all directions and safety precautions listed.

¹ 2,4-D is an option for broadleaf weed control in legume- and grass- based plots. It does not kill all broadleaf weeds.

Best Management Practices

Mowing

Mowing has two primary advantages. First, it reduces weeds and second, it improves the pasture's productivity.

Mowing before the weed's seedheads are produced, prevents weeds from spreading. Mowing also keeps the grass shorter, which horses prefer because it has less fiber, is higher in protein and more nutrients reside in the younger leaves and stems.

Dragging

Dragging a pasture helps to distribute manure nutrients evenly and may reduce the number of hot spots that may contribute to off-site environmental problems. One hot issue regarding dragging relates to conflicting information over the harmful spread of parasites within the pasture. Some believe that dragging may actually help to uncover and destroy parasitic eggs and larvae. Since most horse owners already provide parasite control, dragging manure is a recommended form of nutrient management. Additionally, dragging enables the water and air to better penetrate the soil.

Rotation

Resting a pasture is critical to maintaining productivity. Horses tend to overgraze, which may eventually weaken and kill desirable pasture plants, allowing weeds to take hold. Allowing the pasture to recover for 3 to 4 weeks ensures the pasture will remain healthy and productive. Like other field crops, horse pastures require water to be productive. This is especially important during the recovery period.

When designing a pasture, the total grazing area should be divided into three (or more) equal size pastures. Graze one paddock down to 2 to 3 inches, then move the horses to the next paddock. While the pasture recuperates, you should mow it, so that all plants are at an equal height, fertilize and water.

Rules of thumb:

- horses for one week per pasture. Grass blades should be no shorter than 2 to 3 inches.
- Let the pasture rest for three weeks or more. When the grasses have recovered to 6-8 inches they are ready for grazing once more.
- Avoid pasturing horses during wet periods, as the soil will compact, reducing aeration and moisture levels.
- Plan on 1-2 acres of pasture per horse.
<http://clallam.wsu.edu/waterquality/pasture.html>

Renovation

Ideally, it would be best to plow the pasture and grow an annual crop such as corn or oats for one year and seed the pasture the following year. Growing an annual crop helps remove both broadleaf and grass weeds that have strong root systems, destroys mole runs, breaks down the compacted sod, and allows the preparation of a good seedbed.

An alternative method is to (use Round Up®) rotovate the pasture in late fall and leave tilled over winter. Then work a new seedbed in the spring by rotovating or plowing, followed by dragging into a smooth, firm seedbed. It is important that all past plants be buried so they don't re-grow.

Seeding in early spring offers the greatest opportunity for successful renovation. Later plantings are likely to suffer during summer droughts because they don't have the root structure to survive. Also, bacterial nodulation



of legumes slows when plants are under moisture stress and weeds become more competitive. If you must plant during the summer, make sure to irrigate sufficiently in order to establish plant growth.

Planting in the early fall can also be successful, depending on moisture levels and temperatures. It is important the seedling is established 45-60 days before temperatures drop to freezing so plants can get an adequate root system established. <http://clallam.wsu.edu/waterquality/pasture.html>

Seed needs to have good soil contact. This can best be accomplished by using a drill to plant. Broadcast seeding is not recommended because it does not ensure soil contact nor seed placement. If broadcast seeding is the only option, follow with a drag or cultipacker to push seed into the top 1/8 to 1/4 inch of the soil.



Frost seeding

Frost seeding legumes and grasses is an efficient way to improve pasture yields or change the forage composition within the pasture.

Frost seeding has several benefits over traditional forms for planting:

1. Ability to establish forage in an undisturbed sod bed.
2. Reduced need for labor and energy .
3. Minimum equipment investment.
4. Shortened "non-grazing" period.
5. Maintains stand productivity for both grasses and legumes.

As with other planting methods, soil contact is essential for success. This can be achieved by grazing closely in the fall or winter, down to 2 inches, in order to open-up stands and expose soil. Sod-type grasses (bluegrass, brome) are the most difficult to frost seed, especially where a thick layer of thatch covers the soil surface. In these instances a limited amount of animal hoof action may be used to help "plant" the seed. Preferred species are festulolium, ryegrass, orchardgrass, ladino clover and red clover.

In the spring, it's important to reduce plant competition so the new seedlings can develop adequate root systems. By grazing down to 2 inches in the fall, spring re-growth from established plants is slowed down, allowing the seedlings to take hold. As the new seedlings take hold, follow this routine to ensure strong root development:

- Allow pasture to grow to 6-8 inches.
- Mow it.
- Allow it to re-grow to 6-8 inches.
- Mow it again.
- After the second mowing, allow the pasture to re-grow to about 4-6 inches before putting horses on the pasture.



Water

Like other field crops, horse pastures benefit from adequate water throughout the growing season. It provides for faster recovery, maintains productivity and lengthens the life of the pasture.

The amount of water required each week depends on the type of soil and weather conditions. Different soils hold water better than others. A soil test will indicate the amount of watering that is required.



Northern US Pasture Management Calendar

Source: University of Minnesota Extension Service

March	Animals out of pasture
April	Soil test and fertilize (end of month)
Mid-April	Apply supplemental nitrogen (grass pastures)
May 1-15	Begin grazing
June	Cut surplus forage for hay
Mid-June	Apply supplemental nitrogen (grass pastures)
Early July	Cut weeds and mature plants
Mid-August	Apply supplemental nitrogen (grass pastures)
September	Cut or spray perennial weeds
September/ October	Let plants recover
Winter	Snow cover

Southern US Pasture Management Calendar

Source: University of Minnesota Extension Service

March	Fertilize winter cool season grasses with Nitrogen
April	Plant warm season grasses
May	Soil test & begin grazing
June	Cut surplus forage for hay Supply N to warm season pastures
July	Cut weeds and mature plants
August	Apply N to warm season pastures
September	Plant or overseed cool season grasses and clovers
Late September	Apply starter fertilizer to cool season pastures
October	Apply P & K to winterize warm season pastures
Nov/Dec	Graze cool season grasses
Jan/Feb	Clip/Graze cool season pastures

Characteristics of Forage Grasses

	Re-growth	Legume Compatibility	Winter Hardiness	Ease of Establishment	Drought Tolerance	Flooding Tolerance	Persistence	Sward Density	Palatability
Kentucky Bluegrass	Good	Poor	Excellent	Good	Fair	Fair	Good	Excellent	Good
Orchardgrass	Excellent	Good	Good	Good	Fair	Fair	Good	Fair	Good
Perennial Ryegrass	Good	Fair	Fair	Excellent	Fair	Fair	Fair	Good	Excellent
Timothy	Fair	Good	Excellent	Good	Poor	Poor	Poor	Fair	Excellent
Festulolium	Good	Good	Good	Excellent	Fair	Fair	Good	Good	Excellent
Tetraploid Annual Ryegrass	Excellent	Fair	N/A	Excellent	Fair	Fair	Poor	Poor	Excellent
Alfalfa	Good	N/A	Excellent	Good	Good	Poor	Good	Good	Excellent
Tall Fescue	Excellent	Good	Good	Good	Fair	Excellent	Good	Fair	Fair
Bermudagrass	Good	Excellent	Good	Excellent	Good	Fair	Good	Good	Good



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- M. A. Russell, Animal Sciences Department
- Photos of plants used with permission.
- Winnebago County Land & Water Conservation Department
Oshkosh, Wisconsin 54901
- Rutgers Cooperative Extension - <http://www.rce.rutgers.edu/horsepastures/index.html>
- Making Better Use of Your Horse Pasture - BU-07540 2000 University of Minnesota Extension Service.



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