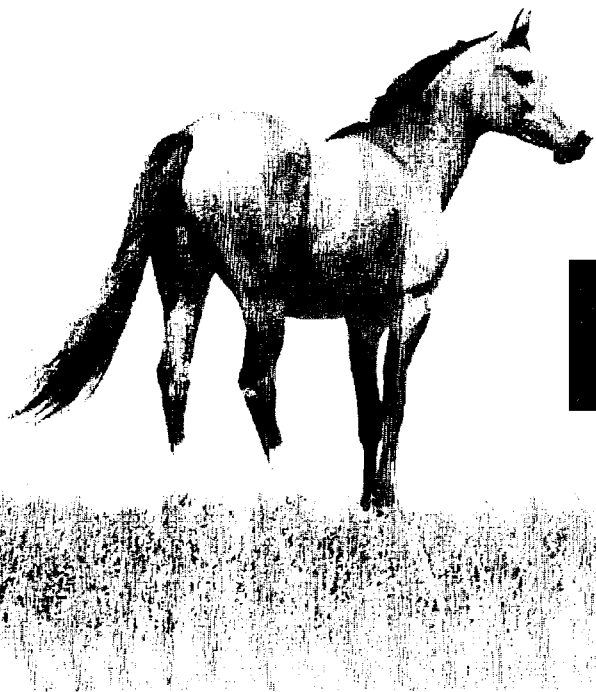


R-1062



HORSE PASTURES

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Horses need high quality, digestible forage. Unlike cattle or sheep, ruminant animals having a four compartment stomach, horses have a simple stomach, meaning only one stomach. Ruminants are capable of utilizing high fiber feeds to a greater extent than horses. Thus, the importance of not allowing forages to reach advanced stages of maturity in horse grazed pastures.

The nutritional composition of pasture forages must be determined if it will be the major feed source. The options on pasture management are then determined. Pasture management or improvements may include establishment, renovation or merely maintenance through proper grazing management.

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NDSU EXTENSION SERVICE

North Dakota State University, Fargo, ND 58105

JULY 1993

◆ Pasture Use

The first decision on pasture use is to determine if sufficient acreage is available to maintain a nutrition program. Horses benefit from exercise and often prefer being outside. This need can be met on a relatively small, well-drained lot. But if the pasture is to provide a major feed source, other factors must be considered, including nutritional value of the pasture forages and pasture carrying capacity.

Nutritional Value

Native pastures in North Dakota provide ample nutritional quality throughout most of the grazing season (Table 1). Horses can be maintained on native pastures if water is abundant and trace mineralized salt plus phosphorous are supplemented. Typically, native pasture forages are high in nutritional value when actively growing and become lower in nutritional value with maturity. Supplementing with high quality feed may be desired from mid-August on if plants are allowed to mature and regrowth is limited.

Cool-season grasses such as Kentucky bluegrass, smooth brome grass, green needlegrass, and western

Table 1. Nutrient composition of native and domestic pasture forage compared with nutrient needs of horses (Nutrient Requirements of Horses 1978, National Resource Council 1982, Whitman et al. 1951, Kilcher 1975, Ferebee, 1972).

Plant Species	----- 100% Dry Matter Basis -----			
	Crude Protein (%)	Digestible Energy (Mcal/lb)	Calcium (%)	Phosphorus (%)
Native				
Late-May	15.9	1.17	0.70	0.21
Late-July	8.7	—	—	—
Early-Nov.	5.4	1.06	0.33	0.19
Kentucky bluegrass				
Late-May	13.3	1.44	0.33	0.30
Late-July	10.2	—	—	—
Late-Sept.	9.6	1.12	0.30	0.25
Smooth brome grass				
Late-May	17.4	1.46	0.55	0.45
Late-July	8.0	—	—	—
Late-Sept.	5.0	1.06	0.26	0.16
Alfalfa				
Vegetative	20.0	1.26	2.19	0.31
Mid-bloom	18.3	1.16	2.01	0.28
Full-bloom	14.0	1.10	1.53	0.27
Type of Horse	----- Minimum Requirements -----			
Mature or idle	10.0	1.00	0.30	0.20
Pregnant (last 90 days)	12.0	1.10	0.50	0.34
Lactation	13.0	1.20	0.50	0.34
Weanling	15.0	1.40	0.60	0.35
Two-year old	12.0	1.20	0.35	0.20

wheatgrass will obtain a second cycle of growth in September and October, allowing for high quality feed during this later time period. However, during times of limited fall precipitation or drought conditions, this regrowth pattern may not occur or be reduced and supplementation may be required.

Established domestic grass pastures (smooth brome grass, Kentucky bluegrass, intermediate wheatgrass) can meet most horses' nutritional needs throughout much of the grazing season. Typically, these grasses may drop below the required nutritional needs of mature horses and will drop below the needs of lactating mares in mid-summer. Carefully monitor the grass and the body condition of the animals and supplement with quality feed when plants become rank or grazed too close. Once sufficient regrowth has occurred (approximately 4 to 6 inches or the three- to four-leaf stage), horses can be returned to that pasture.

Adding a legume with the grass mixture when establishing a permanent horse pasture will help maintain the animals' nutritional needs through the summer period when nutritional quality of domestic grasses is low. Bloat (flatulent colic) may occur in horses not slowly adapted to pastures with a high percentage of legumes. Legumes such as alfalfa or clovers can be included in a pasture mix, but sweetclover is not recommended for pregnant and milking mares. Legumes such as alfalfa mature later and provide a high quality feed in the summer.

Carrying Capacity

Carrying capacities will vary throughout North Dakota due to precipitation difference, range sites (soil type), topography, salt or alkaline conditions, and degree of grazing management. These differences will affect both native pastures and established domestic grass and grass-legume pastures. Domestic grass and grass-legume pastures will produce more forage than native pastures, allowing for a higher stocking rate.

Typically, 10 to 18 acres of well-managed native pasture is required in western North Dakota, and 3 to 6 acres in eastern North Dakota to maintain one mature horse for a six month grazing season. Carrying capacity of domestic grass pasture will vary dramatically from region to region within the same plant species, as well as among different plant species.

For instance, Kentucky bluegrass produces about one-half and crested wheatgrass three-fourths the forage as smooth brome grass. Kentucky bluegrass and smooth brome grass do not tolerate low moisture conditions as well as intermediate and crested wheatgrass, thus minimizing their use in western North Dakota. Crested wheatgrass becomes rank much earlier than the other tame grasses, providing only limited use during the grazing season. If alfalfa is incorporated into the seed mixture, forage production may increase 50 to 100 percent.

◆ Pasture Type

There are a number of situations that can be discussed when determining pasture type. Pastures that may be discussed include: 1) new pasture establishment, 2) renovating existing pastures, 3) managing and maintaining existing pastures, and 4) developing exercise pastures.

◆ Establishing New Pastures

Two things must be considered before establishing a new pasture for horses. First, do you want a temporary or permanent pasture? Second, if a permanent pasture is desired, do you want to seed a native grass stand, domestic grass stand, or a domestic grass-legume type stand?

Since this publication is designed for horse pastures, seeding a domestic grass or domestic grass-legume stand is recommended. If your intent is to graze horses with cattle throughout the entire grazing season (approximately six months in North Dakota), then a native grass mixture may be desired. If you are interested in seeding native grass mixes, refer to circular R-790, "Planting Tips...Rangeland, Pastureland and Hayland," and contact your local county agent or Soil Conservation Service office for assistance in determining a grass seed mixture for your location.

Temporary or Annual Pastures

Several annual grasses can provide temporary pasture for horses. Planting in separate fields at staggered dates can provide full season grazing on temporary schedules (Table 2). Small grains (oats and barley) can provide short-term pastures for one to two months. Oats and barley should be planted in April at the rate of 2 bushels of seed per acre to provide pasture during June and July. Follow soil test recommendations to apply phosphorus and potassium and use only a small amount of nitrogen.

Table 2. Annual pasture schedule for North Dakota.

Season	Forage	Feeding Time	Grazing Time
Spring	Oats, barley	April to May	Late May to early July
Summer	Pearl Millet	Late May to mid June	Early July to season end
Fall-Spring	Wheat	Late August and September	November, April, May
Other	Stubble regrowth		August September

You can add additional nitrogen after the small grains emerge. Weeds can be a problem, so plan and prepare a firm, clean seedbed before planting. Do not allow grazing until plants reach heights of 6 to 8 inches.

Winter wheat will furnish pasture in both fall and spring for limited periods. Prepare seedbed and fertilize as recommended for other small grains. Plant from August 1 to October 15 at the rate of 1 to 1.5 bushels of seed per acre. The earlier planting date may allow a short fall grazing pasture, but do not allow grazing of plants shorter than 4 inches. Do not graze in the spring until plants have grown to a height of 8 inches.

Though sudangrass and sudan-sorghum hybrids make good hay and temporary pasture for most classes of livestock, they are not recommended for horse pasture. Sudangrass and sudan-sorghum hybrid seeds are labeled with warnings not to be used as horse pasture due to "cystitis syndrome" in horses.

Foxtail and proso millets are also not recommended as the sole source of feed for horses. The chemical glucoside setaria is found in these millets and has reportedly caused illness or even death to horses.

Pearl millet does not contain glucoside setaria and will provide safe summer and early fall grazing for horses. Plant into a weed-free, firm, moist seedbed after all danger of frost is past (soil temperatures of 65-70 degrees is recommended). If broadcast seeding, plant 15 to 20 pounds of seed per acre, or 7 to 10 pounds per acre if seeding into 30 to 42 inch rows. Plant at shallow depths no deeper than 1 inch. Follow soil test recommendations to apply phosphorus and potassium and use 40 to 60 pounds of nitrogen per acre. Allow 24 to 30 inches of plant growth before grazing, removing the animals when 4 to 6 inches of stubble remains. Allow 12 to 18 inches of regrowth before regrazing. Rotational grazing is recommended with pearl millet.

Permanent Pastures

Permanent pastures are usually the best method for providing a nutritional forage for horses. Here are suggested steps for establishing a new pasture or re-establishing one that is predominantly bare ground and weeds. These steps will include fertilizing, seedbed preparation, possible seed mixtures for North Dakota, and weed control.

Fertilizing

The first step in pasture establishment is to test the soil for fertilization recommendations. Phosphorus and nitrogen are generally necessary for stand establishment in North Dakota. Soil sampling should be conducted by taking soil cores as deep as tillage. Phosphorus is a key component to getting a pasture stand established. Use rates recommended for grass only or grass-legume mixtures that are based on your soil test level and yield goal.

Nitrogen is the most limiting nutrient in North Dakota soils. Typically, 40 to 60 pounds per acre of actual nitrogen is applied prior to the last tillage. Soil testing is recommended to obtain the levels required.

Seedbed Preparation

Preparing a weed-free, firm seedbed is the most important component to developing a successful stand of grass within the shortest time period. Field preparation should be done as early in the spring as field conditions allow. Less tillage will be necessary on smooth, firm surfaces. In fact, no tillage may be needed if the soil surface is firm and smooth and the previous crop was soybeans, small grains or row crops, providing phosphorus and potassium were found to be adequate. Renovating an existing sod will require destroying the old sod with a moldboard plow or a herbicide. Horses should be held off herbicide treated pasture for at least 10 days. Herbicide may make some poisonous plants attractive or palatable. Always check the label for any recommendations.

The results should be a clean and firm seedbed. Test the firmness by walking in the field. Your foot should sink no more than one inch. Consider firming the field with a cultipacker just ahead of seeding. A loose seedbed can reduce stand establishment due to poor soil-seed contact.

Seeding

The first step in seeding is determining the best seed mixture for your operation. There are a number of seed options that favor horse pastures in North Dakota, including pure grass stands and grass-legume stands. Adding a legume to the seed mixture often achieves high nutritional quality and quantity. Alfalfa will be the best choice as a legume in North Dakota due to drought tolerance compared to other legumes. A number of alfalfa varieties have been developed that tolerate moderate levels of grazing in a pastureland situation. Refer to Tables 3 and 4 to help determine seeding mixtures on well-drained or somewhat poorly drained soils in North Dakota.

Poorly drained soils should be seeded with either reed canary grass or Garrison creeping foxtail. These grasses can tolerate standing water for short periods of time and need high moisture areas. The seeds are very small and need only be planted at rates of 2 to 4 pounds per acre.

Seeding can be done either in late fall when there is no possibility germination will occur or in early spring as soon as field conditions allow. If a legume is part of the mix, spring seeding is recommended because of better stand establishment.

Table 3. Seeding mixtures as recommended on well-drained and somewhat poorly drained soil types in central and eastern North Dakota.

Grass-Legume Mix	Rate	Grass Mix	Rate
Kentucky bluegrass	3-4 lb/a	Smooth brome grass	3-4 lb/a
Alfalfa	4 lb/a	Kentucky bluegrass	2-3 lb/a
Intermediate wheatgrass	3 lb/a	Intermediate	2-3 lb/a
Smooth brome grass	4-5 lb/a	Kentucky bluegrass	2-4 lb/a
Alfalfa	3 lb/a	Smooth bluegrass	5-6 lb/a
Intermediate wheatgrass	3 lb/a		
Kentucky bluegrass	5 lb/a	Smooth brome grass	7-9 lb/a
Alfalfa	3-5 lb/a		
Smooth brome grass	6-8 lb/a	Kentucky bluegrass	6-7 lb/a
Alfalfa	3-5 lb/a		

Table 4. Seeding mixtures as recommended on well-drained and somewhat poorly drained soil types in western North Dakota.

Grass-Legume Mix	Rate	Grass Mix	Rate
Crested wheatgrass	4 lb/a	Crested wheatgrass	3-4 lb/a
Russian wildrye	4 lb/a	Russian wildrye	3-4 lb/a
Alfalfa	3 lb/a	Intermediate wheatgrass	2-3 lb/a
Intermediate wheatgrass	2 lb/a		
Crested wheatgrass	5-7 lb/a		
Alfalfa	3 lb/a		
Intermediate wheatgrass	2-4 lb/a		
Russian wildrye	5-7 lb/a		
Alfalfa	3 lb/a		
Intermediate wheatgrass	2-4 lb/a		

A cover crop of oats is common but usually not necessary. It will compete with the grasses and legume for stand establishment, sometimes detrimental during dry conditions. Economically, income from the grain is usually offset by reduced pasture yields.

Seeding should be shallow, ¼ to ¾ inches deep, and followed by packing wheels or a cultipacker. Deeply planted grasses and legumes do not have sufficient seedling vigor to emerge and establish.

Seeding rates are recommended in Tables 3 and 4 for specific grass and grass-legume mixtures. If other species and seeding rates are desired, contact your local county agent or Soil Conservation Service office. Generally, 6 to 8 pounds of grass seed plus one to 3 pounds of the desired legume seed per acre are common.

◆ Facts on Plant Species

Kentucky bluegrass: No other grass is held in as high esteem by horse owners as Kentucky bluegrass. It is well adapted to the North Dakota climate and soil types, and grows naturally throughout the state. It is palatable and high in nutritional value, withstanding close grazing and trampling. This grass can be managed to maintain a legume component if desired. Kentucky bluegrass is very winter hardy but does not tolerate low moisture conditions. It is not recommended for pasture development in western North Dakota.

Smooth brome grass: Brome grass also may be used successfully as a horse pasture. It is commonly found through central and eastern North Dakota. This grass is not very drought tolerant and will not grow very successfully in western and west central North Dakota. Closer pasture management is required with smooth brome grass because it is somewhat sensitive to close grazing. Palatability and nutrition is very good in the spring and early summer, and again in late summer and early fall. Smooth brome grass makes a good mix with alfalfa.

Intermediate wheatgrass: Intermediate or pubescent wheatgrass will make a good grass mixture with other grasses and alfalfa. This grass will allow for spring and early summer grazing but does become rank as it matures and may need to be clipped or grazed by cattle to maintain palatability throughout the remaining grazing season. Intermediate wheatgrass also withstands trampling but

will not withstand close grazing over time. It is a drought tolerant grass and is recommended in a grass mixture for western and central North Dakota.

Russian wildrye: Russian wildrye will make a good horse pasture in western North Dakota, either as a single grass or, preferably, as a mixture with other grasses. It is leafy and palatable throughout the grazing season. This grass will make an excellent fall pasture when seeded by itself. It withstands close grazing and trampling and is drought tolerant. Altai wildrye can be substituted for Russian wildrye but has been classified as more difficult to establish.

Crested wheatgrass: Crested wheatgrass is the most drought tolerant of the grass species mentioned and makes good forage in May and June. The plant will become rank and be grazed sparingly after this time. Clipping will be needed to remove the coarse seedstalks. This grass is recommended as a single spring pasture or as part of a grass or grass-legume mix in western North Dakota. It is very palatable in the immature growth stage.

Orchardgrass: Orchardgrass is a very desirable grass for horses but is not drought tolerant or very winter hardy. It can be used successfully as part of a grass or grass-legume mixture in southeastern North Dakota. It is equal to Kentucky bluegrass for horse pasture and can withstand somewhat close grazing. It makes a good companion with legumes.

Legumes: Any legume that is adapted to the soil type and moisture conditions of an area can be used successfully in horse pastures. Horses must be adapted to the legume pasture to minimize fear of using alfalfa, birdsfoot trefoil, or clover. Horses will accept sweetclover as a preferred plant, but since it is a biennial (lives for two years), it will only be used in temporary pasture conditions. Birdsfoot trefoil is not nearly as drought tolerant as alfalfa and only recommended for use in eastern and possibly east-central North Dakota for the legume mix. Alfalfa is the preferred legume mix in North Dakota due to higher drought tolerance and winter hardiness and higher forage production potential. No legume will withstand close grazing, so including legumes in a pasture means increasing the management needs and use of rotational grazing. Limiting the amount of alfalfa in the seed mixture to 35 to 50 percent will help minimize slobbering or excess saliva production. Slobber is not harmful to the horse but may be considered unattractive.

◆ Renovating Existing Pastures

Practices for renovating existing stands will vary with pasture types, including native pastures, domestic grass pastures, and grass-legume pastures.

Renovation may include one or more practices, including fertilizer, weed control, pasture clipping, and interseeding.

Fertilizing

Most domestic grass stands can be renovated simply by applying necessary fertilizer. Cool-season grasses such as Kentucky bluegrass, smooth brome grass, crested wheatgrass, intermediate wheatgrass, wildrye grasses, and orchardgrass respond significantly to fertilizer, especially nitrogen, in North Dakota. Grass production may increase over two-fold when proper fertilizer is applied.

Nitrogen will be the main fertilizer required and can be broadcasted in early spring (April). Forty to 60 pounds active nitrogen is a general recommendation, but soil tests should be conducted to determine required amounts. Phosphorus may also be limited in North Dakota, so a soil test should be performed.

Fertilizing native pasture is generally not recommended unless dominated by cool-season grasses. Once again, nitrogen will be the limiting fertilizer and should only be applied once, not in consecutive years. Warm-season grasses show little to no benefit from fertilizing. As the cool-season grasses respond, they out-compete the warm-season grasses, upsetting the warm-season, cool-season grass balance needed to sustain a pasture for seasonlong grazing. Undesirable weedy plants will also respond positively to fertilizer and will need to be controlled when occurring over large areas.

Weed Control

Weed control may be needed if too many broadleaf plants reduce forage quality and quantity. Weeds compete vigorously with grasses and legumes for moisture, nutrients and light. Although most weeds are high in nutritional value, they are unpalatable to horses, with some being poisonous. Consumption of poisonous plants may be more of a problem from overgrazed pastures or during periods of drought.

Weed control can be conducted by periodic mowing, chemical application or a combination of both. Several herbicides are available for broadleaf control in grass pastures. The most commonly used is 2,4-D, but others may include dicamba, MCPA, and piclorum. Always read and follow label directions and safety measures when

using chemicals. Consult your local county agent or weed board officer for help in choosing the proper chemical. Also refer to NDSU Extension circular W-253, "Agricultural Weed Control Guide."

Clipping Pastures

Many domestic grasses become rank as they mature, decreasing in palatability and acceptance by horses. If grasses such as crested wheatgrass, intermediate wheatgrass and smooth brome grass become mature, clipping will need to be performed to eliminate stiff seedstalks. The plant will regrow, providing a lush new green growth.

Removing seedstalks can be achieved by grazing cattle together with the horses. Cattle are less selective and will achieve a more even distribution of grazing throughout the pasture. Cattle will help extend the grazing season for horses by keeping the plants immature longer.

Interseeding

Interseeding may be desired when more than 50 to 75 percent of the desirable plants are eliminated from the pasture and replaced by undesirable species. Domestic grass pastures may be interseeded with the same grass species, other grass species and/or legumes. Legume introduction will help improve the quality and quantity of forage and is a good technique in renovation of horse pastures. Legumes also reduce the need for nitrogen fertilization, improve horse performance, and provide better seasonal distribution of forage in mid-summer.

Seeding legumes into a domestic grass sod needs to be conducted on a regular basis. Legumes are shorter lived. They should be re-introduced when they contribute less than 30 percent of the pasture's total area, or approximately one to two legume plants per square foot.

Interseeding native pasture requires more consideration and is generally a last resort next to complete re-establishment. Legumes can be interseeded into native range to increase quality but are generally readily grazed off and production decreases dramatically after the second year. Grasses commonly interseeded into native range include western wheatgrass and green-needlegrass. Western wheatgrass is the easiest of the two to establish. Refer to NDSU Extension circular R-778, "Interseeding Native Pasture," for more information on interseeding native pasture.

Interseeding is a difficult practice when renovating pastures and often the negatives involved with interseeding outweigh the positives. Interseeding is often the last practice recommended when improving native pastures, but can be performed more successfully with legumes in a domestic grass pasture.

◆ Maintaining Native and Re-Established Pastures

Once a pasture has been established or renovated, or when a more efficient native pasture is needed, implementing a management practice to promote a more vigorous, healthy plant community should be performed.

Grazing Management

Proper grazing management is essential to maintain a productive forage base for any pasture. Two very important practices that need to be implemented into your horse pasture grazing management plan are proper timing of grazing and a rotation schedule.

Proper Timing: Grasses and legumes need sufficient growth before grazing is allowed. If grazed too early, plants lose vigor and competitiveness, eventually dying and replaced by undesirable plant species.

Native range should not be grazed in North Dakota until late-May or early June, except for the southeastern region where around May 20 is the suggested turn-on date. The carrying capacity should be based on utilizing no more than 50 to 60 percent of the above-ground foliage by weight. This is generally about 3 to 4 inches of stubble at the end of the grazing season for the mid to taller grass species and 1 to 1.5 inches for shorter grass species.

Introduced grasses begin growth earlier in the spring than do native grasses, allowing for an earlier turn-on date. Crested wheatgrass and smoothbrome can be grazed when they reach the three-leaf stage in development, or late April to early May in North Dakota. Achieving a degree of grazing use of 60 to 70 percent is recommended for the entire grazing season (about a 1.5 to 2.5 inch stubble) on crested wheatgrass, but only about 50 percent on smooth brome grass. If crested wheatgrass is not grazed early, it will become rank, taking on a more clumped pattern, and unpalatable to horses.

Intermediate wheatgrass and Kentucky bluegrass are also introduced cool-season grasses that can be grazed earlier than native range. The turn-on date for Kentucky bluegrass and intermediate wheatgrass is mid-May in North Dakota. Kentucky bluegrass should be grazed at a stocking rate that will achieve a 50 to 60 percent degree of use, or about a 2.5-inch stubble. Intermediate wheatgrass will not withstand a heavy degree of use for long periods of time, so should be grazed at no more than 50 percent use and rested more than Kentucky bluegrass.

Orchardgrass is not common in North Dakota. It should be grazed similar to Kentucky bluegrass but not as heavy, achieving degree of use rates of 40 to 50 percent.

Legumes should not be grazed until they start to flower and not overgrazed on any one area, since this quickly reduces the amount of legumes in the stand. Rotational grazing is a must with legumes to retain productivity and long grazing periods on one area.

Rotational Grazing: Dividing the acreage into two and preferably more pastures is recommended to allow rest periods of 30 to 45 days. Rest is necessary to permit plant regrowth and improve plant vigor.

Rotational grazing can help control parasites and discourage some animal diseases. It also provides better animal distribution. Horses are spot grazers, causing underutilization of some areas and overgrazing of others. Rotational grazing should allow for higher stocking rates as compared to seasonlong grazing.

Grazing with other classes of livestock: As mentioned earlier, horses are severe spot grazers, resulting in poor pasture utilization. If possible, graze cattle or sheep with horses to maintain balance among grasses, legumes and forbs. Cattle will utilize the otherwise wasted grasses, while sheep will utilize more of the forbs and shrubs.

Cattle droppings are also more randomly distributed while horse droppings concentrate in specific areas, becoming "hot spots" for parasites. Cattle and horses do not have the same intestinal parasites, allowing each to graze around the other's droppings without becoming infested.

Clipping and Dragging: Clipping mature, rank grasses is generally required if cattle are not grazed with horses. Horses tend to avoid areas where grasses become mature, overgrazing those areas previously grazed and regrowing. Clipping can encourage legumes by controlling rank grass and weed growth that horses don't eat. Remove the excess clippings for hay or bedding to avoid smothering new growth.

Horses tend to avoid areas with heavy contamination of feces and urine. Spreading the droppings by dragging a chain across the pasture will help break down the material and eliminate "hot spots." However, horses should not be placed in a pasture that has just been dragged. Dragging spreads parasites over a wider area of the pasture. The manure should be allowed to dry and start the decomposition process.

Fertilizing: Domestic grasses perform better when properly fertilized. Use soil testing to monitor soil fertility levels. Monitor the levels of phosphorus and nitrogen and add only what is needed to maintain nutrient levels. Typically, nitrogen will become limiting once your stand becomes three to four years old.

Other Pasture Requirements: Keep horses out of wet and muddy pastures. In wet weather, horses can punch holes in the sod, destroying the pasture. Drylot the horses during these times until mud is eliminated. Watch for mechanical hazards in the pasture. Wire, glass, nails, and iron can be damaging to the feet, mouths and eyes. Remove them promptly.

Grass Founder: Grass founder can occur on lush pasture. Make sure horses are well fed prior to placing them on pasture. This may reduce overconsumption when initially placed on lush pasture. Gradually adjusting the time on pasture should also be considered if grass founder has been a previous problem or with new horses. Horses should be observed daily when first turned out on pasture.

◆ Exercise Pastures

In certain cases, sufficient acreages are not available for a pasture that will supply the forage needed to furnish the nutrients to maintain one or more horses. In these cases, exercise pastures can be developed and horses fed drylot.

Exercise pastures do not require large acreages since they supply only a small portion of the feed that horses consume. These pastures should be level to slightly rolling and free from rocks, wire or discarded equipment.

Horses in exercise pastures are simply fed drylot style. They should be fed in corrals in order to keep the pasture more productive and attractive. Horses will utilize the hay and grain more efficiently when fed from bunks. This will also reduce the contamination of feed with parasites from manure.

Unless a large area is available, native range is not well suited for exercise pastures. Close grazing and trampling will soon reduce the desirable plant cover to weeds and unpalatable plants. Erosion is sure to follow, leaving an undesirable and unattractive pasture.

Grasses that make good exercise pastures include Kentucky bluegrass, crested wheatgrass and tall wheatgrass. Kentucky bluegrass forms a sod that is quite resistant to close grazing and trampling. It will provide a good horse exercise pasture in central and eastern North Dakota under normal climatic conditions. Irrigation will be needed to maintain a productive stand in western North Dakota. Crested wheatgrass is more suited for western North Dakota due to higher drought tolerance. Since crested wheatgrass is not a sod-former but a bunchgrass, severe grazing can promote weedy species invasion, but proper grazing will promote more tillering, reducing the clumpy look and developing a sod-looking pasture. Monitor pasture use and control weeds through a mowing or chemical application program.

Seeding with tall wheatgrass may be desirable for those exercise pastures receiving very heavy traffic. Tall wheatgrass is more resistant to trampling and is unpalatable as it matures, leaving a dense grass pasture.

Exercise pastures need maintenance to remain productive and attractive. Horse droppings should be scattered across the pasture periodically with a drag chain or physically removed. This helps minimize parasite populations. Also, pastures should be mowed periodically to remove weeds and rank vegetation, leaving a greener, more productive pasture.

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