

Draft Horse Handbook

WASHINGTON STATE UNIVERSITY EXTENSION



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DRAFT HORSE HANDBOOK

BREEDS OF DRAFT HORSES

Belgian

The Belgian draft horse, as the name indicates, originated and was developed in Belgium. In 1886 the Belgian Draft Horse Society was organized to encourage the breeding of native draft horses and to maintain a studbook for the breed. The breeding of Belgian draft horses is also promoted by the Belgian government, which annually awards prizes and subsidies to the best animals in the various provinces. Stallions which stand for public service must be approved by a commission appointed by the government.

These horses were imported into the United States with some frequency during the last half of the 19th century, but it was not until the beginning of the 20th century that they were imported in large numbers. The early trade was principally in stallions, but later a considerable number of mares were imported.

The Belgian shares honors with the Shire as being the heaviest of the breeds. Mature stallions in fair condition, weighing a ton or more, are comparatively common. In height mature stallions average slightly over 16¹/₄ hands, and mature mares about 16 hands. In general conformation they are the most compact of all breeds, the bodies being short, wide, and deep. The head is of medium size, the neck is short and heavily crested or arched, the chest is broad and deep, the back is short and well muscled over the loin, the croup is somewhat drooping or steep, and the quarters are full and heavily muscled. The legs are short and free from the long hair or feather characteristic of the Clydesdale and the Shire. In action the Belgian is good, but is less active than the Clydesdale or the Percheron. In temperament he is docile and easily handled, is a good feeder, is rated as an easy keeper, and stands shipment well. The colors common to the Belgian are bay, chestnut, and roan, but browns, grays, and blacks are occasionally seen.

Some of the criticisms of the Belgian horse are that a large number have necks that are too short and heavy, too drooping a croup, a roughness about the hocks, bone that is not sufficiently flat, too short and straight a pastern, hoof deficient in circumference, and a lack of general quality; but great improvement has been noted in respect to these deficiencies in recent years. The extreme width may cause Belgians to roll somewhat at the walk, but as a class they are good movers at the trot.

In this country the Belgian sire has been valuable in improving the draft conformation of our horse stock, particularly when mated with many of our rangy, loosely coupled mares.

The American Association of Importers and Breeders of Belgian Draft Horses was organized in 1887, but the first volume of its studbook was not published until 1905. The association address is Belgian Draft Horse Corporation of America, Box 335, Wabash, IN 46992. Web address: <http://www.belgiancorp.com/>.

Percheron

The Percheron originated in France, and was developed in a small district in the northwestern part of that country known as Perche. This district is about one-fifteenth the size of Iowa, and only Percherons born within its boundaries are eligible to registry in the Percheron Studbook of France. Percheron foals, to be accepted for registry in the French book, must be registered during the year of their birth. Prior to such registration they must be examined by an official appointed by the Percheron Horse Society of France, who takes a careful description of their color and markings and brands the horse on the neck with the letters "S.P." enlaced.

The Percheron Horse Society of France was organized in 1883. The improvement of the Percheron and other breeds in France is due to both public and private efforts. The government has for a number of years maintained studs in which selected animals have been kept for breeding purposes. In addition, subsidies are granted to private individuals to keep high-class horses in the stud. Stallions intended to stand for public service in France must be examined by officials appointed by the government and be certified as free from periodic ophthalmia, or moon blindness, and roaring (thick wind).

The introduction of Percheron horses into the United States dates to the 1850s. One of the early stallions brought to this country that exerted considerable influence on our draft stock was Louis Napoleon, imported in 1851 by an Ohio firm. Other Percherons were imported about that time and during succeeding years. During the early 1870s they were imported in large numbers, and these importations have continued to the present.

The head of the Percheron is clean-cut, of medium size, and more refinement is noticed about the head and neck of the Percheron than in any other draft breed. The

neck is rather short and well crested. The chest is deep and broad, the back is short, the loins smooth and well muscled. The croup is wide, and on the average is somewhat more sloping than is considered desirable, but great improvement in this respect has been made. The legs, feet, and bone are on the average good. The legs are free from long hair or feather characteristic of the Clydesdale and the Shire. In action the Percheron is good at both the trot and the walk, and the trot is characterized by a snap and boldness not ordinarily displayed by most of the other draft breeds. This breed may be regarded as one of the best movers and is surpassed in style of action only by the Clydesdale.

The Percheron is not so large a horse as either the Belgian or the Shire, but as a class will probably outweigh the Clydesdale slightly. Good, mature stallions in fair condition will usually weigh from 1,800 to 2,000 pounds, and there are many which weigh considerably over 2,000 pounds. In height good mature stallions will measure 16 to 17 hands, generally averaging about 16½ hands, but of course there are some under and a few over these heights, although the rangy, tall Percheron is not in demand in this country. The popular Percheron is rather short-legged, compact, and blocky in form, less so than the Belgian, but more so than the Clydesdale or even the Shire.

The colors common to the Percheron are black and gray, although bays, browns, chestnuts, and roans are occasionally seen. About 90% of our Percherons are either black or gray.

The Percheron Horse Association of America describes the Percheron as follows:

Percherons are noted for extra heavy muscling in the lower thighs and for an aspect of unusual ruggedness and power. Also characteristic of the Percheron is the clean action and the quality conformation of the feet and legs. An ideal horse should have a fairly long croup with a big, round hip. He should be close coupled and wide and deep through the chest, with plenty of back rib. The muscles of the arms, fore-arms, croup and gaskins are especially emphasized in a good drafter, and ease and balance of gait are essential. He is also expected to be of marked tractability and intelligence, and an easy keeper.

The Percheron head and neck are typical of the most attractive draft horse character. Our ideal horse has a full and prominent eye, a broad and full forehead, straight face, a strong jaw and ears refined and attractively set, and carried with

animation suggesting the Arabian. Sires should have a ruggedness about the head; the mares show more feminine refinement.

In 1876 the National Association of Importers and Breeders of Percheron-Norman Horses was organized. The Percheron Society of America, now known as the Percheron Horse Association of America, was an outgrowth of that association. The address of the secretary of this association is P. O. Box 141, Fredericktown, OH 43019. Web address: <http://percheronhorse.org/>.

Clydesdale

The Clydesdale originated and was developed in Scotland, and is practically the only draft horse found or favored in that country. The breed is of mixed origin and its early history is obscure.

In the formation of the breed, and during the early stages of the breed's development, it is probable that the blood of both Flemish and English horses was used. For a number of years the Clydesdale has been bred pure. In 1878 the Clydesdale Horse Society of Great Britain and Ireland was organized.

The first Clydesdales brought to North America were probably imported into Canada by the Scotch who had settled there. In the early 1870s Clydesdales were imported into this country both through Canada and by direct importation. By 1880 they were being imported in large numbers, and these importations continued for several years.

The Clydesdale is not as heavy as either the Belgian or the Shire, and probably, as a class, will not weigh quite as much as the Percheron. In general conformation, the Clydesdale is more rangy and lacks the width and compactness of the other breeds mentioned. The Scotch breeders have paid particular attention to legs, pasterns, and feet, but have placed less emphasis on weight than has been the case in other draft breeds. Average mature Clydesdale stallions in this country will weigh from 1,700 to 1,900 pounds when in fair condition, with an average height of nearly 16¾ hands. Mature mares will weigh 1,600 to 1,800 pounds and average about 16 hands in height.

No other draft breed equals the Clydesdale in style and action. The prompt walk with a good, long, snappy stride, and a sharp trot with hocks well flexed and carried close together are characteristic of this breed. Sound, clean, flat bone; well-set, fairly long, sloping pasterns; large, round feet; and a moderate amount of fine feather or long hair at the rear of the legs below the

knees and hocks are important and characteristic features. The colors most common are bay and brown with white markings, but blacks, grays, chestnuts, and roans are occasionally seen. The white markings are characteristic, and it is the exception to see a bay or brown Clydesdale without a white face and considerable white on the feet and legs.

Some of the criticisms of this breed have been the lack of body size, lack of width and depth, too much feather, and too much white with no regularity of distribution. Most draft-horse breeders in this country, particularly farmers, dislike a horse with a white face and legs. Nor has the feather been very popular owing to the extra care necessary to keep the legs clean.

It is not always easy to differentiate between Clydesdales and Shires, but taking the breeds as a whole, they are very distinct. The Clydesdale is not so heavy bodied as the Shire, has more refinement, and the feather is somewhat more silky or finer and less abundant than in the Shire.

The American Clydesdale Association was organized in 1879 and operated under that name until 1934 when it became known as the Clydesdale Breeders Association of the United States. The business of the society is handled by its president at 17346 Kelley Rd., Pecatonica, Illinois 61063. Web address: <http://www.clydesusa.com/>.

Shire

The Shire originated and was developed in England. The real origin of this breed is speculative. It is known that this type of draft horse existed in England in early times. It is probable that the early Shire was of very mixed breeding, but at present the Shire is bred very pure. In 1878 the Shire horse breeders of England were organized under the name of the English Cart Horse Society. In 1884 the name was changed to the Shire Horse Society.

Shires were imported into this country in the late 1800s. George E. Brown, in Volume 1 of the American Shire Horse Studbook, states that in 1853 a Mr. Strickland imported a stallion direct from England to Aurora, Illinois, where the horse was known as John Bull. Volume 1 of this studbook shows the registration of a small number of stallions imported in 1880, and these importations increased until in 1887 more than 400 Shires were imported.

The Shire is a massive horse with a wide, deep, and long body, and is equaled in weight only by the Belgian. Shire stallions in fair condition weighing 2,000 pounds or over are comparatively common. They are less compact, or more rangy, than the Belgian, and in height will average

taller than any other draft breed. Stallions standing 17 hands or more in height are very common; in fact the average height of mature Shire stallions in this country is close to 17 hands. Mature Shire mares will average about 16¹/₄ hands in height, and in fair condition will average about 1,800 pounds in weight. Heavy bone and feather are characteristic of this breed. In temperament the Shire is probably more phlegmatic than any of our other breeds, and therefore less active than is desired by many. The common colors are bay and brown, with white markings, although blacks, grays, chestnuts, and roans are occasionally seen.

This breed has been criticized for lack of quality and refinement in general, a sluggish temperament, the abundance of feather, and the large amount of white, but breeders have shown marked progress in overcoming these objections during the last few years. From the standpoint of many breeders in the United States the abundant feather is objectionable, owing to the difficulty of keeping the legs clean.

Although some Shires and Clydesdales are so similar as to render it difficult at times to distinguish one from the other, the two types are really very distinct. The Shire is more massive, heavier bodied throughout, and the feather or long hair on the legs is more abundant and coarser than that of the Clydesdale.

The American Shire Horse Association was organized in 1885. Its address is 1211 Hill Harrell Rd., Effingham, SC 29541. Web address: <http://www.shirehorse.org/>.

Suffolk

The American Suffolk Horse Association gives the following description for the breed:

The breed was developed in East Anglia, the counties of Norwich and Suffolk, England. The first volume of the stud book was published in 1880, although horsemen in this district had kept private records for many years prior to that. Crisp's horse of Ufford, the foundation stallion of the breed, was foaled in 1768.

The Suffolk is the only draft breed that breeds completely true to color. Out of over 12,000 matings investigated not a single foal of any color but chestnut was discovered. Seven shades, ranging from dark liver to light golden sorrel occur. White markings occur but, in general, are not as prominent as in other breeds, most of them being confined to a star or snip and white ankles or fetlocks.

This uniformity of color makes the Suffolk easy to mate up into teams. Chestnut is a popular and saleable color.

Typically the head of the Suffolk is rather long, very bold and bony, ears of moderate size, well placed and sensitive. The neck is strong, rather short and very muscular, deep in the collar, with a fine silky mane on an arched crest which tapers gracefully to the setting of the head. Shoulders are muscular. A well rounded rib, deep all the way from shoulder to flank, a Suffolk horse must have, and so a graceful outline of back, loin and hind quarters, which are wide and heavily muscled.

Characteristically the whole appearance of the Suffolk is of pleasing rotundity, punchy, without flatness or grossness anywhere—just a pleasant, roundly modelled whole that pertains, like the singleness of color, to no other breed.

Height averages perhaps 16.1 hands, but there are plenty of stallions that stand up to 17 hands and even more. After measuring many stallions, a leading authority gives the proper girth to be about eight feet. The legs are straight with medium sloping pasterns, knees big and broad, hocks long and clean, cannon bones short and devoid of long or coarse hair. Quality, indicated by a thin skin and soft hair tightly fitted, especially over the bones and joints of the legs, has long been a conspicuous feature of the breed. The feet are round, of fair size and the bone of excellent texture.

While the rotund, plump body of the Suffolk may make the bone in some individuals appear light, measurements taken at any time will prove that they are chargeable with no deficiency in this regard. The action is smooth and free, not high or extravagant, but straight and true at both walk and trot. The endurance of this breed as a whole, and the productiveness of its mares, are unequalled.

The Suffolk, bred for the furrow, exhibits a ready willingness to work, great endurance, and the quality known as 'heart.' They are fast walkers and easy keepers, all factors of great importance to early-day farmers. These same qualities, plus docility and intelligence, make them popular with today's teamsters and pullers.

The address of the American Suffolk Horse Association is 4240 Goehring Rd., Ledbetter, TX 78946-5004.

Web address: <http://www.suffolkpunch.com/>.

Mule

The mule is a hybrid, resulting from the mating of a mare with a jack. The opposite cross, the stallion on the jennet, produces the hinny. Like most hybrids, the mule is usually sterile.

Compared with the draft horse, the mule is not as deep, wide, compact, or massive. He is longer and narrower in body, has lighter bone, and smaller, more narrow feet. He is less nervous in temperament than the horse, is tougher, stands hot weather better, and endures hardship and rough treatment better than the horse. Unsoundnesses are less common in mules than in horses.

In the early farming days of America, mules were classified according to their weight, type, and the kinds of work they performed. This early mule classification listed draft, farm, sugar, cotton, and mining mules according to height and weight, with the draft mules being as tall as 17¹/₂ hands and weighing from 1,200 to 1,600 pounds. The mining mules were as small as 12 hands in height and 600 pounds in weight.

Although the mule and draft horse differ in temperament and appearance, the same procedures and principles apply in judging them. The same points on the draft horse score card are used in judging mules and the terms used to describe the ideal mule are much the same as those used in judging the ideal draft horse.

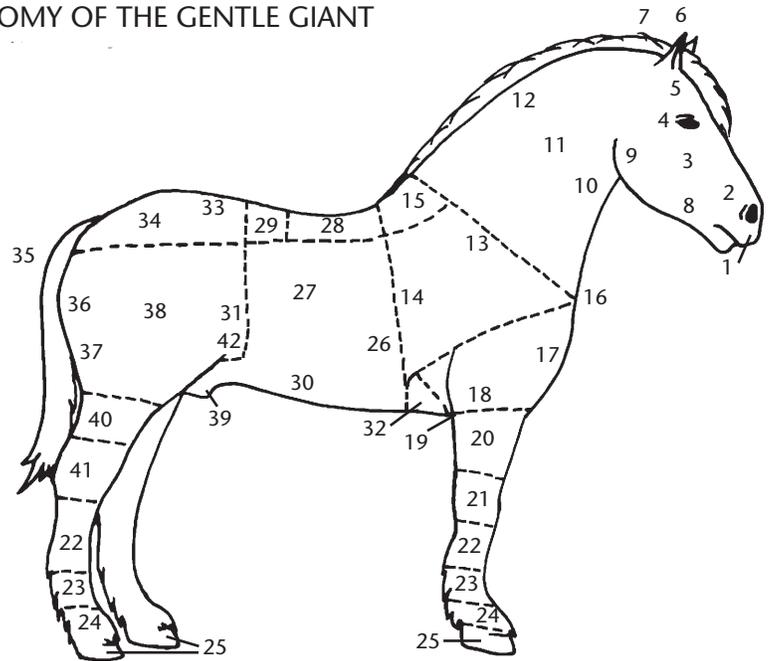
The draft mule most commonly favored in the Pacific Northwest for show purposes will stand from 15 to 16 hands in height. Regardless of his height, he needs to maintain a basic pleasing, drafty appearance with the body parts put together to indicate as much quality and smoothness as possible. His body may appear a little higher off the ground than we ordinarily associate with a draft animal. In action, his walk should be long, free, straight, quick, and springy and his trot should be straight, free, high, and energetic.

DRAFT HORSE JUDGING

The draft horse is characterized by massiveness, and the particular field for this horse is the hauling of heavy loads at a comparatively slow gait, usually at the walk.

THE ANATOMY OF THE GENTLE GIANT

- | | |
|-----------------------|----------------------|
| 1. muzzle | 22. cannon |
| 2. nostrils | 23. fetlock joint |
| 3. face | 24. pastern |
| 4. eye | 25. foot |
| 5. forehead | 26. heart girth |
| 6. ear | 27. ribs |
| 7. poll | 28. back |
| 8. cheek | 29. loin |
| 9. jaw | 30. underline |
| 10. throatlatch | 31. rear flank |
| 11. neck | 32. fore flank |
| 12. crest | 33. coupling |
| 13. shoulderbed | 34. croup |
| 14. shoulder | 35. tail |
| 15. withers | 36. point of buttock |
| 16. point of shoulder | 37. quarters |
| 17. breast | 38. thigh |
| 18. arm | 39. sheath |
| 19. elbow | 40. gaskin |
| 20. forearm | 41. hock |
| 21. knee | 42. stifle |



Therefore power and not speed is desired, and in order to possess this power the horse should be generally blocky or compact, low-set or short-legged, and sufficiently heavy to enable him to throw the necessary weight into the collar to move the heavy load and at the same time maintain a secure footing.

Draft horses are classified according to market requirements into heavy draft, light draft, and loggers based on the horses's weight, quality, and utility. The best heavy horses, classified as heavy drafters, stand from 16 to 17 $\frac{1}{2}$ hands high (a "hand" being 4 inches) and weigh from 1,750 to 2,200 pounds. The light draft horses are similar in type to the heavy draft horses but smaller. They range in height from 15 $\frac{3}{4}$ to 16 $\frac{1}{2}$ hands and in weight from 1,600 to 1,750 pounds. The loggers are big, rugged horses suitable for lumbering work. Although as large and heavy as the heavy draft horses, they are plainer and sometimes slightly blemished or unsound. The range in height and weight for loggers is practically the same as for heavy drafters.

Chunks, essentially little drafters, are classified chiefly from the standpoint of conformation but are usually more blocky and compact. The eastern chunk is of true draft-horse conformation, but with less height and weight, ranging in height from 15 to 16 hands and in weight from 1,300 to 1,550 pounds. Farm chunks, commonly known as general-purpose horses, are not quite so heavy nor so good in quality as the eastern chunks. Farm chunks range in height from 15 to 15 $\frac{3}{4}$ hands and in weight from 1,200 to 1,400 pounds.

In the typical drafter the head is comparatively lean, wide between the eyes, and in size proportionate to the body. The eye is bright and fairly prominent. The neck is strong and muscular, of fair length, and somewhat arched; in the stallion it is well arched or crested, in the gelding or mare less so. The shoulders are shorter and more upright than those of the light horse, and a happy medium between the straight and sloping shoulder gives the best combination of power and movement. Too straight a shoulder causes excessive concussion, and the result is bone and tendon trouble in the feet and legs. On the other hand, too sloping a shoulder renders it difficult to fit the heavy collars properly. In the draft horse, however, the former is much more common than the latter.

The chest is deep and comparatively broad, thus providing plenty of room for the lungs. The heart girth, or the body's circumference behind the forelegs, is large, and horses slack in that region are usually weak in constitution. The body is broad, deep, and comparatively short; the back is short and broad and the ribs well sprung, giving a round appearance to the body. The horse with a shallow body is usually a poor feeder. The loin is broad and well muscled; the croup is fairly level, long, broad, and well muscled. A short, decidedly sloping croup is not so well muscled as the straighter and longer one. The hind quarters and thighs are well muscled; it is from the hind quarters that the horse obtains most of its propelling power, the front legs acting largely as weight carriers.

Good underpinning, consisting of good legs and feet, are essential. Good, big, clean, heavy bone is necessary to

afford attachments for the heavy muscles and to stand the wear and tear of hard work. The cannon bones are the best indication of the bone throughout. In this region the bone should feel firm, and the tendons should stand out distinctly from the bone, giving the cannon bones when viewed from the side a wide, flat appearance. The knee should be broad and deep when viewed from the front. The hock should be broad from front to back, and of strong structure. The pasterns should be fairly long and sloping. Though some draft horses possess too long and too sloping pasterns, a much larger number have too short and too straight pasterns. The foot should be fairly large and round and the hoof wall dense. The dark-colored hoofs are most popular, as it is thought they denote greater durability. In the draft horse as much quality as is consistent with the required substance is desirable, but quality should not be obtained at the sacrifice of too much weight.

In temperament the draft horse is generally sluggish. Although the nature of his work requires him to be steady and easily managed, it is nevertheless essential that he perform it willingly and with some snap and vigor.

The draft horse gait is the walk. The stride should be rapid and of good length, and the feet should be carried straight forward. This kind of action makes possible the covering of the most ground in the least possible time. While the walk is the normal gait, the ability to trot well is desirable. Often faults not noticeable at the walk are brought out at the trot.

The “hitch” type of draft horse has become popular in recent years because of driving contests, shows, and exhibitions. This horse needs to maintain the basic draft proportions to his body conformation, yet stand higher off the ground than the basic blocky, low-set, more short-legged draft type. This type, being used for shows and exhibitions rather than moving heavy loads, can move at the walk and trot with more snap and vigor and a longer, more elastic stride.

The following is a list of draft horse characteristics:

GENERAL APPEARANCE

- Height: Estimated hands _____ ; actual hands _____
- Weight: Estimated _____ ; actual _____ ; according to age & type
- Form: Broad, deep, massive, well proportioned, low set
- Quality and substance: Abundance of clean, flat bone; broad, well-defined joints and tendons; refined head and ears; fine skin and hair; feather, if present, silky
- Temperament: Energetic, good disposition

HEAD AND NECK

- Head: Proportionate, medium size, clean cut; wide lower jaw
- Forehead: Broad, full
- Eyes: Large, prominent, bright, clear
- Muzzle: Broad, fine; large nostrils; trim, even lips
- Ears: Of medium size, well-set, carried alert
- Neck: Medium long, muscular; good crest, clean throatlatch

FOREHEAD

- Shoulders: Sloping, muscular, blending into smooth withers
- Arms: Short, muscular, elbow in
- Forearms: Wide, muscular
- Knees: Straight, wide, deep, well supported
- Cannons: Short, wide, lean, flat; large, well-defined tendons
- Fetlocks: Wide, straight, tendons well back, well supported
- Pasterns: Of medium length, oblique (about 45°), clean, strong
- Feet: Large, round, set straight; dense, smooth horn; slope of wall parallel to pastern; heels, widest part of hoof; concave sole; strong bars; prominent, elastic frog
- Leg position: In front, a perpendicular line from point of shoulder should divide the leg and foot into lateral halves; from the side, a similar line from the bony prominence on shoulder blade should pass through the center of elbow, knee, and pastern joints, and meet the ground back of foot

BODY

- Chest: Deep, wide, large girth
- Ribs: Long, well sprung, close, strongly coupled
- Back: Short, broad, heavily muscled
- Loin: Short, wide, heavily muscled
- Flanks: Deep, full; long, low underline

HINDQUARTERS

- Hips: Wide, smooth, level, well muscled
- Croup: Long, wide, muscular, not markedly drooping
- Tail: Set high, well carried
- Quarters and thighs: Deep, thick, muscular, strongly jointed to gaskins

- Stifles: Muscular, well set
- Gaskins (lower thighs): Wide, heavily muscled
- Hocks: Wide, deep, prominent point, clean cut, straight, well supported
- Cannons: Similar to front except a trifle longer and wider
- Fetlocks: Wide, straight, tendons well back, well supported
- Pasterns: Similar to front but less sloping (about 50°)
- Feet: Similar to front but not quite so large or so round
- Leg position: From rear, a perpendicular line from point of buttock should divide the leg and foot into lateral halves; from the side, this same line should touch the point of hock and run parallel to the cannon. A similar line from the hip joint should meet the ground midway between the heel and toe.

ACTION

- Walk: Straight, long stride, springy and balanced
- Trot: Straight, long stride, free and regular

SHOWING DRAFT HORSES AT HALTER

The Handler

Be neat, clean, and quietly dressed. Attire should be suitable for the show ring and the job at hand and fit properly without being loose or too tight. Acknowledge the judge on entry to the ring. A nod and smile will do.

The Horse

The condition and general appearance of the horse should show thriftiness, yet be neither too fat nor too thin. The hair should be smooth and glossy and the mane and tail glossy.

The horse should be free from dirt, dust, dandruff, and straw. The mane and tail should be braided, combed, or separated out and clean. If not braided, it should be thinned and shortened to blend best with the proportions of the head and neck and the hindquarters and legs.

The feet should be clean and trimmed; if shod, properly fitted with a wide heel.

In the Ring

Draft horses are often taken into the show ring at a trot. However this depends on local custom. Trotting into the

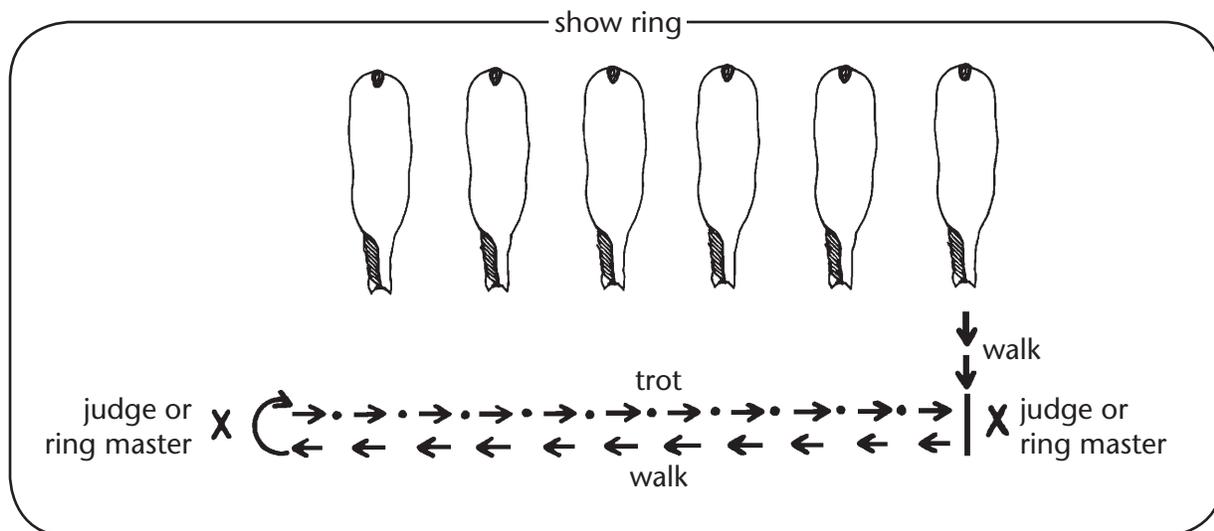
ring tends to stimulate their nervous temperament so they will not be entirely relaxed. It is impossible to show a horse to advantage if he is thoroughly relaxed. He will be dull and awkward. Use a 1/2 cotton rope halter for colts, geldings, and mares that can be controlled in a halter. Such a halter should be properly fitted so it will stay in place when the rope is pulled up to raise the horse's head. Use a white leather bridle with a chin chain and white cotton lead rope for stallions. Bridles are also permissible for showing mares.

Watch the judge. Keep on the left side of the horse just ahead of the shoulder reasonably close to the head of the horse but not in front of him. The rope is usually folded up and held in the hand with which the horse is being led. Since the first requirement in showing a draft horse is to have him under control, he is not given very much rope when he is shown. This length of rope from the hand to the halter will probably vary from 6 to 18 inches and will depend on whether the horse is being walked, trotted, or stood up for the judge. Some grooms carry a short stick or whip when showing horses.

You will be asked to show your horse in action at a walk and trot (see illustration on following page). When your turn comes, lead the horse to the spot indicated by the person in charge and face in the direction you are to go. Hesitate just long enough to stand the horse squarely on the line ready to walk out in a balanced, true way of going. Walk to the person standing at the other end of a straight line. Move in a brisk, alert manner and allow enough slack in the lead rope for the horse's head to move freely. Stay in the position in relation to the head and neck previously described and don't block the judge's view of the horse's feet. When you reach the end of the line, stand the horse squarely and wait the signal to go back.

When told to turn and trot back, always turn to the right. This causes the turn to be made in a collected and safe manner and gets the horse into a straight line action more quickly than if the turn is made to the left. Hold your right arm straight out gripping the lead rope close to the halter and begin walking to the right around your horse. Hold him back slightly to cause him to pivot on his hind legs. If the turn is made properly, the animal will end up standing in his own tracks facing the other direction.

You are now facing back to the starting point. Hesitate just long enough to have your horse balanced and ready to go. Trot to the other end of the line, always working on the side. The horse should move freely at the walk and trot in a straight, stylish action indicating some determination. Move at the speed which shows the horse to best advantage. Check this speed with some knowl-



SHOWING AT HALTER

edgeable person before show time. The person showing the horse, particularly at the trot, should show some knee action. However, this should not be overdone. Stop the horse quietly in a collected manner.

As soon as the action of the horse has been demonstrated, he should be “set up” with reasonable promptness back in your place in line or a position indicated by the judge. All four legs should be placed squarely under the body of the horse with the head up at normal height. Whenever possible the front feet should be on higher ground than the hind feet. At least be sure the ground is flat. A horse that is high in the hips, steep in the rump, or crooked in the hind legs is usually stretched out some when he is being shown in line. This practice should not be overdone.

A “trailer” or volunteer whip cracker is allowed to assist in getting the horse to show action. Such a person should be chosen carefully and should know how the horse responds to the use of the whip. Judgment is required to use the whip effectively. It is also important that the “trailer” not obscure the vision of the judge.

The horse should be kept at attention and not permitted to relax as long as the judge is in close proximity in the show ring. The horse should be allowed to relax as long as he stays in position when the judge is not studying your end of the class. Be ready to bring the horse back to alert position immediately if the judge comes your way.

When the judge signals for you to move to one position or the other in the line, back the horse, or if there is room, turn him to the rear of the line and approach the new position from behind. Always keep your horse a safe distance from other horses in the ring. This applies

particularly to stallions. Horses should be trained so that they will not kick even though they come in close proximity to other horses in the ring. Regardless of your position in the final placing, keep on showing the horse until you are out of the arena.

When showing horses in groups, such as in the class for a stallion and three mares, always head the group with the stallion and arrange the mares in the order of their size, standing the largest one next to the stallion. Select the groups as uniformly as possible in size, type, color, and all-around excellency. Keep them close together and well organized in line, and don’t forget that they are showing as a group.

SHOWING HITCHES

Various class specifications call for different maneuvers in showing hitches. However, a few general rules are suggested.

The larger horse of a team is usually placed on the right side when the team is hitched. If one of the horses is faster, it is usually best for him to be on the left side of the hitch.

Doubletrees should be positioned according to the line of draft from the team to the wagon. This is especially true for the wheel team in a multiple hitch but should also be given consideration when butt chain lengths are determined for other teams in a multiple hitch.

Have your hitch under control when entering the ring to give the judge a good first impression. Leave space between your hitch and the one in front of you.

Acknowledge the judge and ringmaster and watch for signals. These signals include changes of gait, reversing the ring, and lining up.

If your hitch moves faster than the one in front, do not check the speed of your team but pass on the inside of the ring, being conscious of the safety of both hitches as you pass.

The question frequently comes up as to where the driver should sit—whether to sit on the right or left side of the seat or in the center of it. This is determined by where the brake is located if the driver is by himself. In such a case, he needs to be positioned where he can manipulate the brake handle. This is usually on the right side. If he has a brakeman riding with him, the brakeman sits in the position to handle the brake and the driver sits where he feels comfortable in handling the team.

To reverse the ring the ringmaster will usually indicate one hitch to lead the half-figure-eight pattern (illustrated below). Of importance during this maneuver is to maintain spacing between hitches, be alert to the judge and ringmaster and be conscious of the other entries so safety can be maintained.

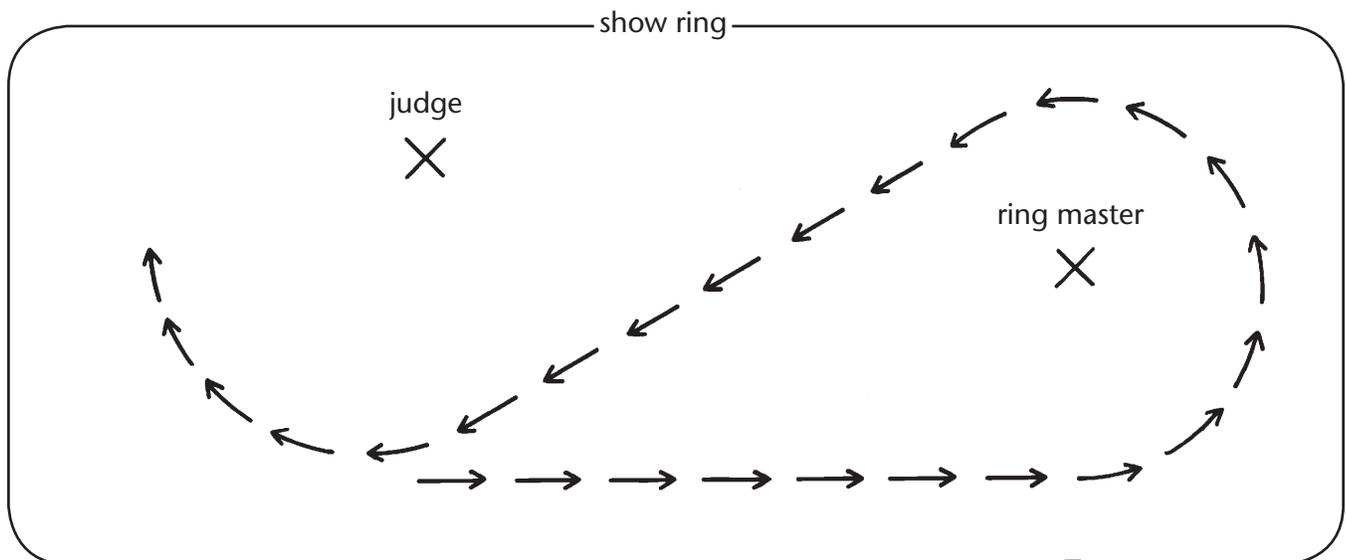
The method of reversing the show ring is sometimes dictated by whether the team is walking or trotting, the size of the show ring, the number of entries, and the condition of the ring floor. Reversals should always be made to the inside of the ring regardless. With large rings of good surface and few teams competing, the reversal may be made by each hitch independently in a circle into the ring and back onto the rail. This is often done in classes where the judge or ringmaster does not specifically ask

for the ring to be half-figure-eighted or if a free driving exhibition is called for with all teams in competition at the same time. In such a free driving exhibition, any maneuver is allowed as long as the safety of all exhibitors is observed. Under no circumstances should an unsafe maneuver be attempted during a free driving exhibition. Keep the traces even on hitches of all sizes while working. The judge will be looking for a team that is matched in size and color and has the same action with the legs moving together at the walk, trot, and in backing. This shows the hitch works well as a unit.

The driver should sit erect and comfortably (not stiff and at attention). His hands and arms should be in a comfortable looking position, yet appear business-like. This can be accomplished by keeping the elbows reasonably close to the body with the forearms more or less parallel to the ground. Hands held too low can give the appearance of lack of control with lack of contact with the bit. The brakeman, if one is employed, should sit erect and relaxed as does the driver. His elbows should be close to his body and his hands comfortably held in his lap or between his belt and chest.

If standing, the driver should be squarely balanced on both feet with the elbows reasonably close to the body. Some extension to the arms is permitted as long as the arm position appears comfortable and the hands, arms, or elbows don't swing wide on turns. Leaning back with the body is a poor position for the standing driver.

The lines should always be taken up by the driver. The hands should never be brought back to the body, behind the body, or over the head of the driver. Let the lines out when needed instead of leaning to the horses. When a



HALF-FIGURE-EIGHT PATTERN FOR SHOWING HITCHES

turn is made, the driver's body is turned without leaning—not the elbows and arms turned. The arms are never spread apart when making driving maneuvers.

After hitches are in line, they will be asked to back. The judge needs to see only 4 or 5 steps backward. Horses should back together willingly in a reasonably straight line, the straighter the better, and not throw their heads. Voice commands are permissible and should be used. The lines should not be used by flopping or snapping them to signal to the horse. Line ends should definitely not be used as whips.

In cart classes the cart shafts should set evenly along the harness traces and the ends should be even with the center of the collar. If ahead of the collar, the shaft end can gouge the horse in the neck on turns. If behind the collar, the shaft end can catch under the collar on turns.

CLASS SPECIFICATIONS

Junior Classes

For people under age 18 on January 1 of the year competing.

Junior Showmanship

- Contestants braid the mane, tie the tail, decorate the horse, and show it in the show ring.
- Conformation of the horse is not considered.
- Showing procedures are described in the section on showing draft horses.

Junior Driving

- The class is judged 100% on driving ability as discussed in the section on showing hitches.

Junior Ladies Cart

- Described under Single Cart—Lady Driver.

Adult Classes

Single Cart—Lady Driver

- The driver should be appropriately dressed and wear shoes—not boots. Long skirts are preferred.
- The horse should be well mannered, easy to handle, responsive to the rein and have even, ground-covering gaits. The horse is to step out rather than up and have a fast, snappy trot. It should come down to a flat-footed walk and stand quietly when stopped. It should back willingly in a reasonably straight line without throwing its head.
- The driver should leave enough space between the entry ahead and hers so she can enter the ring at an easy trot.
- Ring and driving procedures are discussed under showing hitches.

Senior Driving

- The class is judged 100% on driving ability as discussed in the section on showing hitches.
- If markers are used and a figure eight is called for (see illustration), the hitch should be turned close to the nearest marker and driven in a straight line across the center of the ring to the outside of the other marker so a circle is made at each end of the ring.

Other Classes

- Specifications by which classes are judged should be listed in show premium books as to the percentage being awarded the wagon, harness, conformation of the horses, and performance of the horses.
- The basic driving and showing procedures are discussed in earlier sections. By following these and the instructions of the show ringmaster, the exhibitor can do well in any class for which he qualifies.

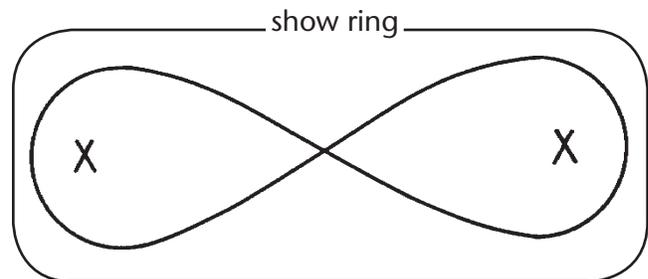
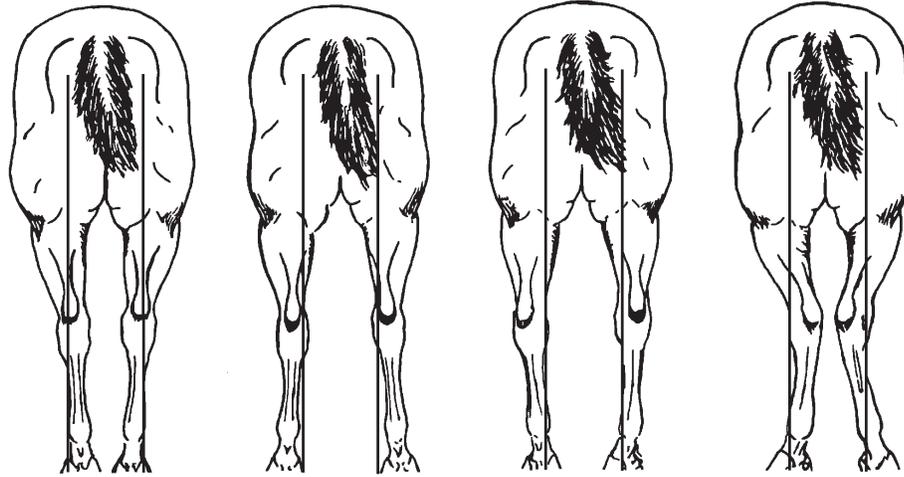


FIGURE-EIGHT PATTERN
FOR SHOWING HITCHES

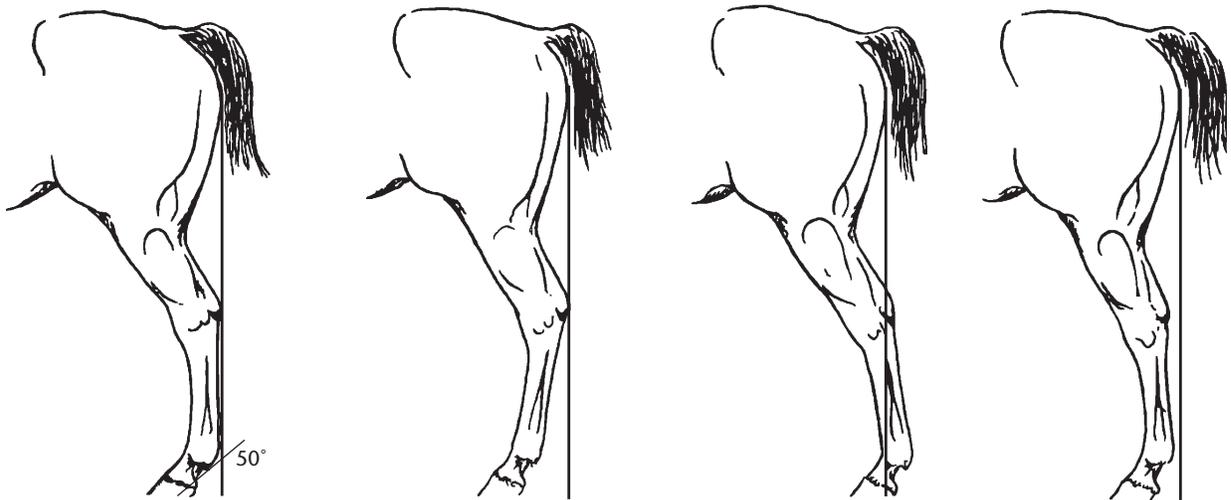


ideal position

stands wide

bow legged

cow hocked



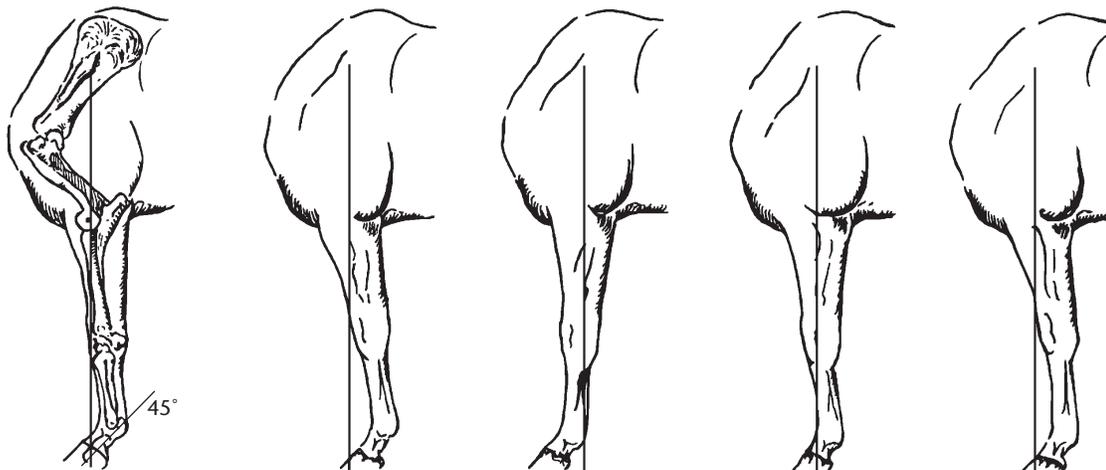
ideal position

stands under

camped out

legs too straight

A vertical line from the point of the buttock should touch the edge of the cannon from hock to fetlock and meet the ground behind the heel.



ideal position

camped under

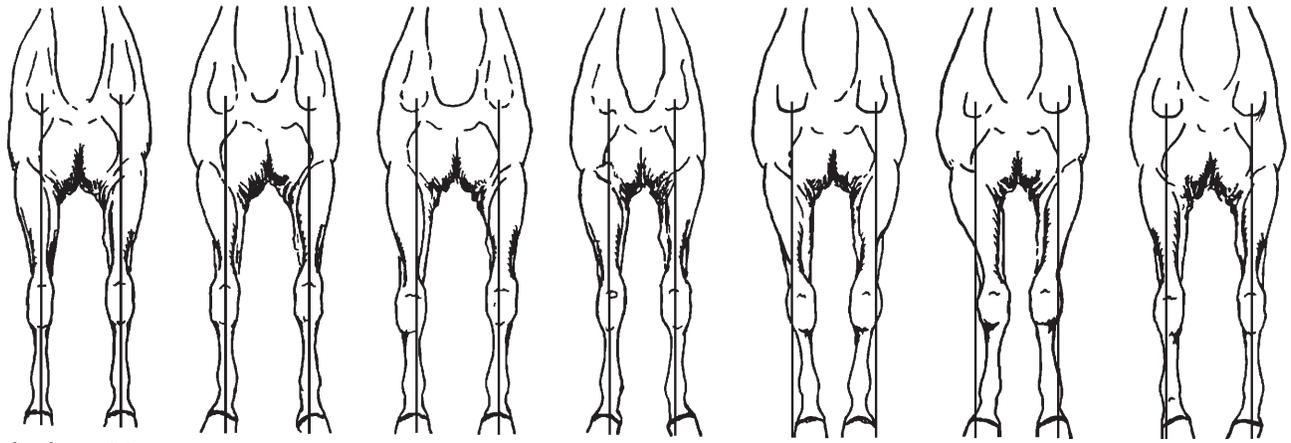
camped out

knee sprung

calf kneed

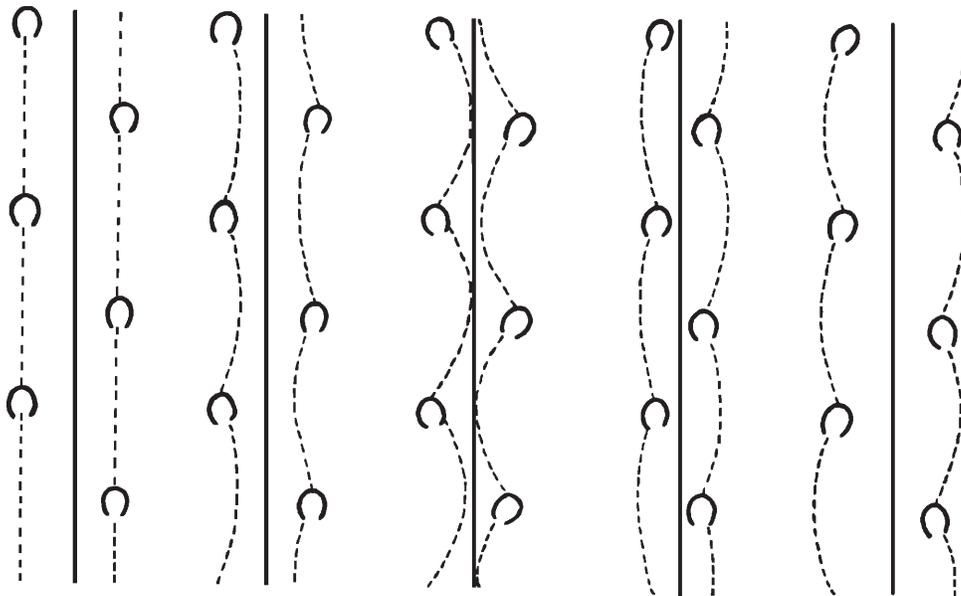
A vertical line from the shoulder should fall through the elbow and center of the foot.

LEG CONFORMATION

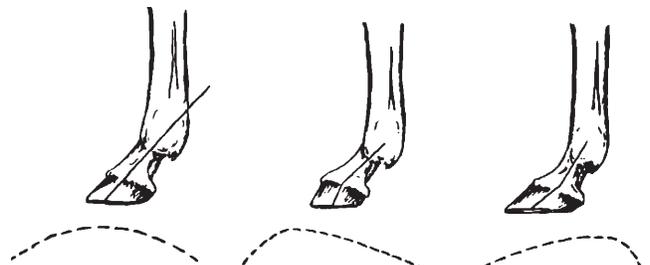


ideal position toes out bow legged narrow chested toes out base narrow stands close knock kneed pigeon toed

A vertical line from the point of the shoulder should fall through the center of the knee, cannon, pastern, and foot.



normal foot moves in a straight line base-wide feet move forward in inward arcs splayed feet move inward in larger inward arcs base-narrow feet move forward in outward arcs pigeon-toed feet move forward in wider outward arcs



normal foot forms even arc in flight too stubby—high heel and short toe causes lengthening of first half of stride, long heel touches the ground earlier which shortens last half of stride long toe—short heel causes shortening of first half of stride and lengthening of last half of stride

LEG AND FOOT CONFORMATION

SHOWING MULES

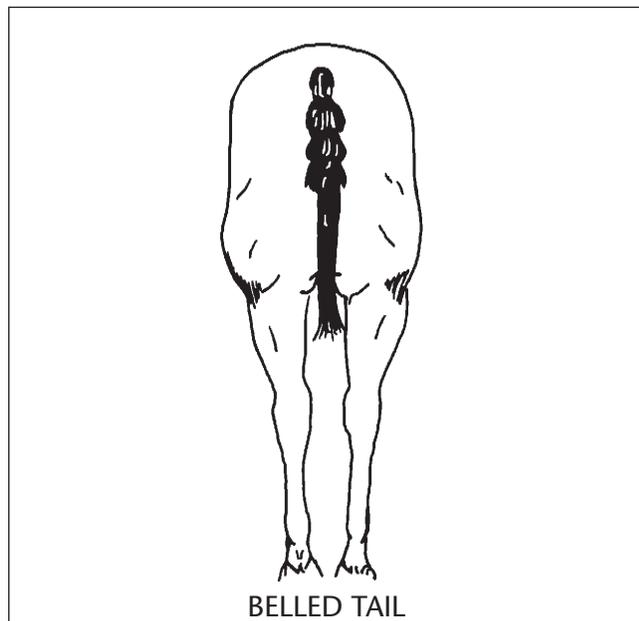
Mules are shown in a minimum of tack. Either a regular or a narrow show halter is appropriate. Of more importance is neatness and fit of the halter rather than type. Sluggish mules may be shown with a lead shank with chain. This chain never goes under the jaw. The occasional jingle of the chain will make the mule more alert.

The mane and tail are dressed in any manner which is neat and good looking. Manes are usually reached or slightly upstanding. Tails are either left natural, belled (see illustration), or shaved about a third of the way down and blended into the remainder of the tail hair.

The mule should be completely shed out with the body hair groomed clean and flat or clipped. Ears of a clipped animal should be clipped inside and a tuft of hair can be left on the tips to enhance the shape and length of the ear.

Be sure the feet are trimmed and clean. Shoe polish may be used on dark hooves and oil on light hooves.

Dress appropriately as described under "Showing Draft Horses" and walk your mule into the ring. From there the procedure is the same as showing horses except that "trailers" are ordinarily not used.



TEAMS AND HARNESS

Development of Big Team Farming

The first big teams of the pioneer days were driven on "stretcher hitches," which were log chains with double-trees attached by means of crotch chains. These teams were called "string teams," and were generally driven by means of a "jerk line" (a single line from the driver's seat to the lead pair of animals); the lead horses were trained to obey the twitches of this line and the call of "gee" (to the right) or "haw" (to the left). Where two animals are driven abreast, the left horse is the "near" horse and the right horse is the "off" horse. This comes from the old habit of sitting at the left-hand side of the wagon in driving, or in leading from the left side.

Some time after the gold rush days in California, and when agriculture was beginning to crowd upon the heels of a fading gold fever there, some ingenious freighter took his entire outfit from the freight wagon and hitched it to the plow, thus adapting the big freighting outfit for the first time to farming. It is believed that this took place in the Sacramento or San Joaquin valley of California.

It was not until 1892 that Schandoney invented his equalized hitch (see "Equalizing Hitches"), where each animal in the team group is forced to pull its full share of the load. This invention made the combine harvester-thresher practical for farmers who had settled the Palouse and Big Bend countries of Washington, as well as for those who were farming on a big scale in California. The combine, in turn, affected the size of the farm unit, which now became two or more sections, and again caused the contrivance of seeding and tillage implements where the same big teams which were used on the combine could be used in preparing and seeding the land. The total result was a "big-team type of farming."

Some Big-Team Terms

Team—The word team is hard to define properly, since it may mean two or more animals driven together. It is used to define the entire group of animals, and also used to define parts of that group. For example, the bunch team is composed of a lead team, wheel team, and perhaps one or more swing teams.

Wheel team—The group of animals nearest the implement.

Lead team—Those animals directly in the lead of the team.

Swing team—Any team between the lead and wheel teams. The swing teams are generally called “first swing team,” “second swing team,” etc., the numbering beginning with the first team ahead of the wheel team.

TYPES OF BIG TEAMS

String Teams

The string team consists of pairs of animals hitched in line with the load. This is the type of team used by the freighter of the pioneer days, and the pairs of horses are usually hitched, by some kind of equalizer, onto a draft chain which passes down between them. Ten head of animals hitched to a three-bottom plow is standard equipment in the big-team farming sections. There is an advantage in this type of team because of the added coolness to the animals in hot weather, and in the freedom of each animal while working. There is less danger from tramping on feet, especially in turning, and it makes hitching a more simple operation. Many believe that the further a team is away from the implement, the less will be its pulling power, but this is not necessarily true if the proper angle of draft is maintained on the traces of all teams.

Bunch Teams

In bunch teams the animals are driven more than two abreast. Often there are four or more animals abreast, the common 12-horse team having three rows of animals four abreast. As many as 36 horses are often used in bunch teams on the combine. These big bunch teams, with properly arranged lines, buck straps, connecting chains and equalized hitches, may be driven as easily as a two-horse team.

Abreast Teams

Teams where all animals are driven abreast, all pulling on one common bar or double-tree, is called an abreast team. In the past, as many as 14 horses were hitched abreast, all hitched by means of chains and double-trees to a telephone pole, which in turn was attached to the implement. An abreast team is unwieldy and difficult to handle if too large. It is rarely seen with more than four animals abreast, except on drag harrows and summer fallow slickers.

TYPES OF HARNESS

The Butt-Chain Harness

Farmers of the big-team sections of the West have devised a type of harness which combines lightness, simplicity, and many time saving advantages. This type

of harness is called the “butt-chain harness” and gets its name from the type of short tug used. Other parts of the harness may vary but the butt-chain tug is in use in practically all of these sections. No one distinct type of harness is demanded in big-team farming, yet experience proves that certain arrangements of harness are a big advantage.

The standard big-team, butt-chain harness (an example of which is shown on the next page) is distinct both for the butt-chain traces and also for other labor saving arrangements, such as hip straps, tug supports, and snaps (instead of buckles). The tugs on the butt-chain harness, instead of extending from the hame to the single-tree, extend only to the horse’s thighs.

The Williams standard butt-chain harness, commonly used in big-team sections of the Northwest, includes:

Traces—Two inches wide, 60 inches long, three-stitched and of three-ply leather. The butt chain is 30 inches long and connects to a trace dee with a swivel snap. The belly band is riveted to the trace. The hip strap support is riveted to the trace 6 inches from the trace dee.

Hames—Steel bond, bolt type, of selected quality. Hame fastener is used in place of the hame strap.

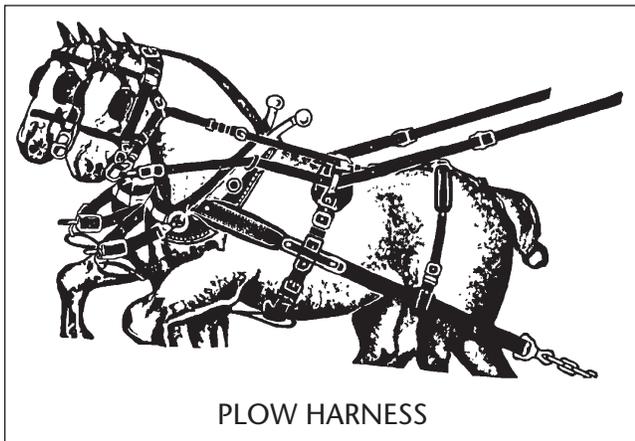
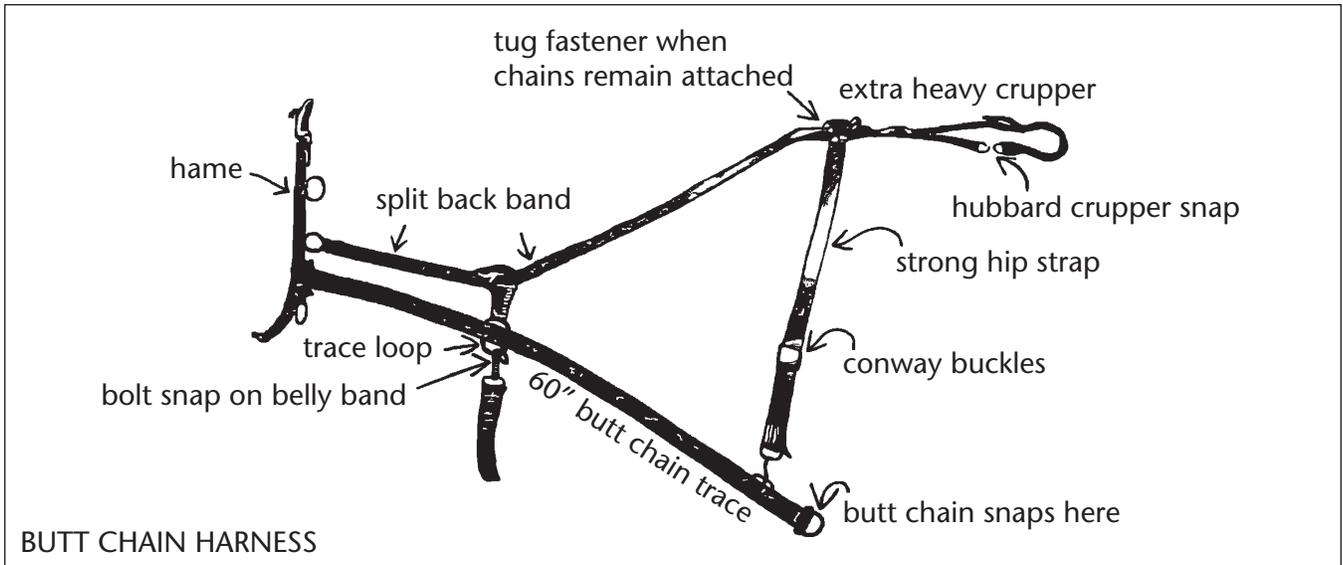
Belly band—Leather strap 36 inches long, 2 inches wide, fastened on the right side with a Conway loop. On the left side it connects to the trace loop by a bolt snap.

Hip-strap—This strap, which extends from the trace carrier on the horse’s rump to the dee end of the trace, is of leather, 1³/₄ inches wide and 42 inches long. It is sewed to the trace carrier ring at the upper end. The lower end attaches to the trace by a Conway loop and a bolt snap.

Crupper—One inch wide at the place where the buckle attaches. It attaches on one side by an ordinary buckle, but on the other side by a Hubbard crupper snap. It is of four-ply leather.

Back bands—This is the split back band type. The rear strap is 40 inches long, 1³/₄ inches wide, and is stitched into the trace carrier ring. The second strap is 26 inches long and attaches to the name ring by means of a Conway loop. The side ring is attached from the back band to the trace carrier loop by a heavily sewed strip 4¹/₂ inches long.

The standard type of butt chain, which extends from this tug to the single-tree, is 2 feet 6 inches long. One type of butt chain is shown below. It has a strong snap, a swivel, and is light, yet strong, and is 30 inches long. Different types of hooks and fasteners are used on butt chains.



of fastening up of the tugs at unhitching time when the driver would have to crowd in between the horses to hook them. The tugs are permanently held up by hip straps so that in unhitching or hitching the only operation is in dropping or attaching the butt chain. There are, therefore, no tugs coming down to be stepped upon or to slap the horse's legs.

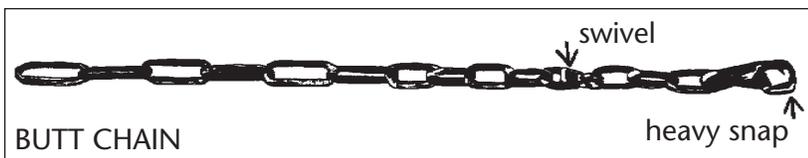
Back Bands

Opinion differs about the back band of the harness. Some favor the regular back band, others the Concord type of split back band. Some argue that with the regular back band the collar is held up against the top of the neck when the animal is eating from a low feed box, thus chafing the top of the neck. They hold that this is especially true when animals are fed from a nose bag. On the other hand, the regular back band probably fits the horse better and keeps its place better than the split back band.

Weights of Harness

In using the butt-chain harness in big-team outfits, the lines usually are left off most of the animals, although a buck strap may be used instead. They are accordingly much lighter than the ordinary farm harness. The average butt-chain, big-team harness without lines, etc. (but with buck straps attached) weighs from 20 to 24 pounds. The regular farm harness, with britching and lines, weighs in the neighborhood of 35 pounds, while a heavy dray or wagon harness often weighs 44 to 50 pounds. The lighter harness is a distinct advantage in harnessing. The butt chain harness is much lighter than the ordinary harness and the short tugs do away with the necessity

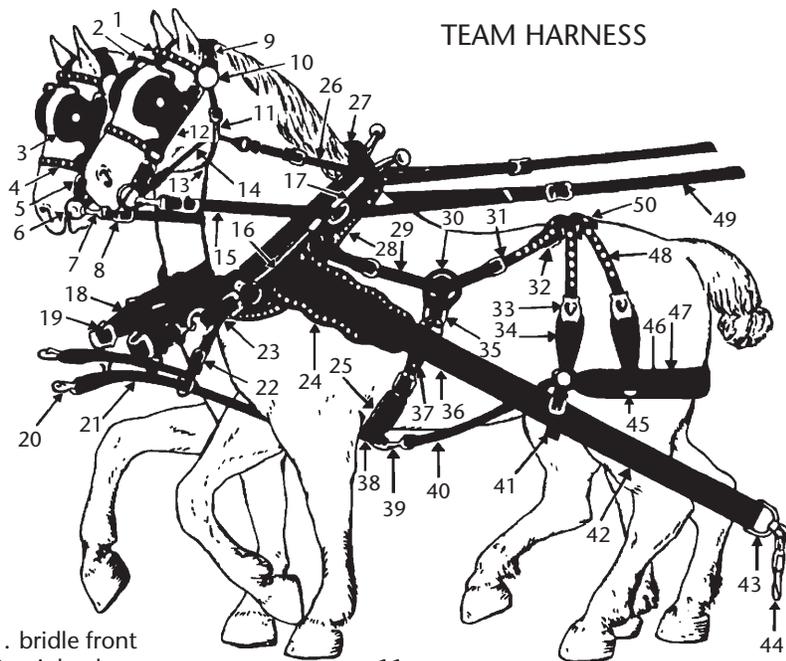
The big team harness should have a strong crupper. In the model harness the crupper is 1 inch in diameter, four-ply, and made extra strong. It fastens with a Hubbard crupper snap. It needs to be made strong and heavy for big team purposes because teams are handled in unit fashion. They are let out of barns, watered and led to implements with the animals tied to each other. If a horse is contrary and tends to pull sideways, this makes the strain come upon the back band and the crupper.



Lighter Weight Harness

When the loads are not as heavy and there is less stress on the harness, a lighter weight harness can be used, such as the single

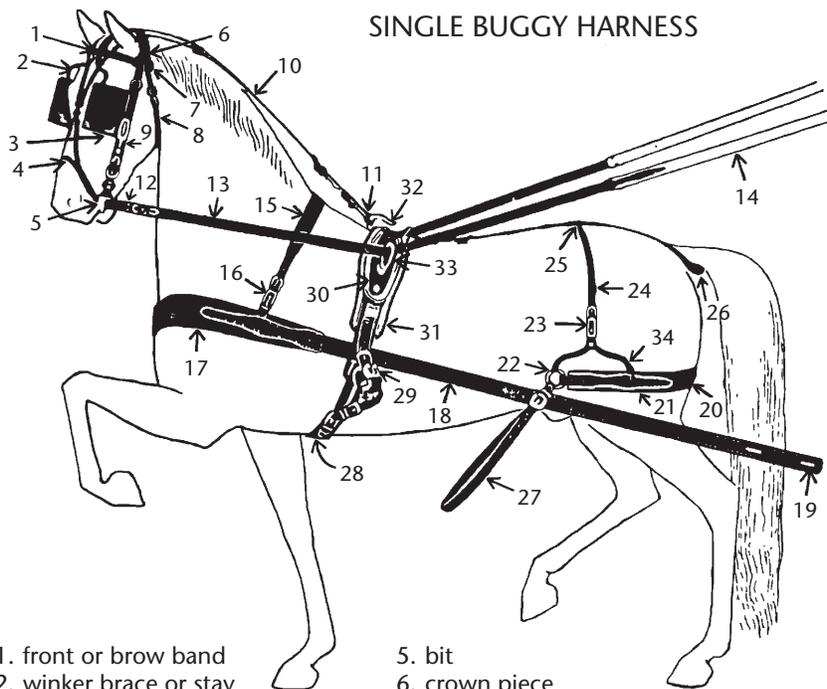
TEAM HARNESS



- 1. bridle front
- 2. winker brace
- 3. blind or winker
- 4. nose band
- 5. bit strap
- 6. ring bit
- 7. bolt snap on check line
- 8. 1880 buckle on check line
- 9. brow band or crown
- 10. bridle rosette
- 11. gag runner
- 12. bridle check
- 13. throat latch
- 14. side check
- 15. check line—front part
- 16. bolt on hame
- 17. long spot on hame
- 18. breast strap
- 19. common slide on breast strap

- 20. anchor roller snap
- 21. pole strap
- 22. collar strap
- 23. breast strap lengthener
- 24. safe on trace
- 25. belly band
- 26. side check—back part
- 27. top collar pad
- 28. collar
- 29. back strap—front part
- 30. safe on market tug
- 31. back strap—back part
- 32. rump safe
- 33. buckle shield
- 34. uptug safe
- 35. market tugs
- 36. loop on trace
- 37. belly band billet
- 38. safe on pole strap
- 39. bolt snap on long side strap
- 40. long side strap
- 41. lazy strap
- 42. trace
- 43. 3 link toggle
- 44. links on toggle
- 45. layer loop
- 46. layer on breeching seat
- 47. breeching seat or fold
- 48. hip strap (spotted)
- 49. check line—hand part
- 50. trace carrier

SINGLE BUGGY HARNESS



- 1. front or brow band
- 2. winker brace or stay
- 3. blind or winker
- 4. nose band on over check
- 5. bit
- 6. crown piece
- 7. bridle rosette
- 8. throat latch

- 9. bridle check
- 10. over check
- 11. over check loop
- 12. steel billet on lines
- 13. lines, front part
- 14. lines, hand part
- 15. neck strap
- 16. uptug breast
- 17. breast-collar body
- 18. traces
- 19. heel end of traces
- 20. breeching seat
- 21. breeching layer point
- 22. breeching ring
- 23. breeching uptug
- 24. hip strap
- 25. turnback
- 26. crupper
- 27. breeching strap
- 28. belly band
- 29. shaft tug
- 30. gig-saddle
- 31. gig-saddle bearer
- 32. gig-saddle hook
- 33. gig-saddle terret
- 34. breeching stay

buggy harness (see figure on facing page). Most of the parts function the same as on the heavier plow or team harness, but it has lighter weight straps and a breast collar instead of a padded horse collar.

HITCHES

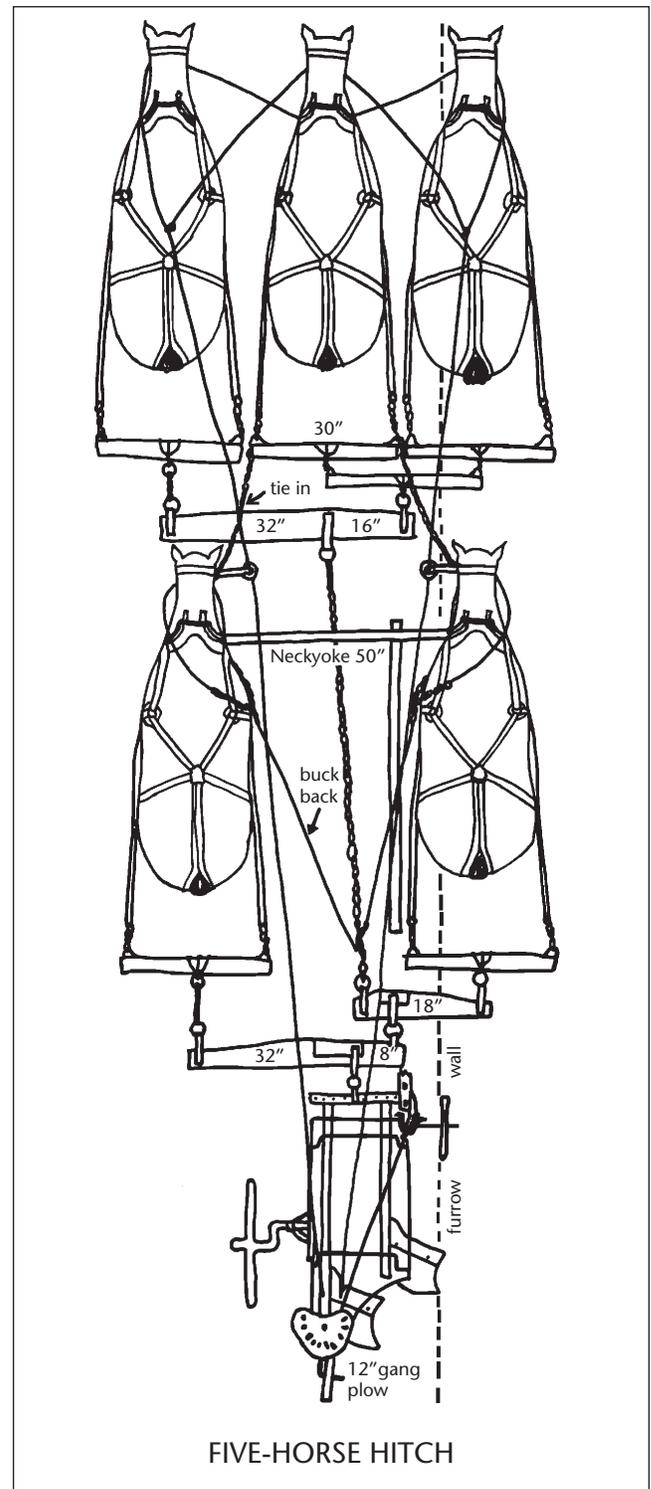
With the five-horse hitch the rear horses work nearly as far apart as do the outside leaders. The neck yoke on the wheel team must be arranged so it extends about 18 inches longer on the horse working on unplowed ground than on his mate. The advantages of this hitch are that it gives ample air space to the rear team (which is the harder of the two to keep cool) and enables the teamster to get a good view of all his horses; it also allows plenty of room for lines, and, in turning short at the end of the field, makes it almost impossible for the lead team to punch the rear team with its double-trees; also it causes little trampling and crowding on turns.

The illustration shows the five-horse hitch proper, with horses tied in and bucked back. Frequently the rear left horse is tied in with two chains, which are used only in starting a new horse. After he becomes accustomed to working in this manner the extra or outside chain is not needed, and the chain at center, instead of being attached as shown in the drawing, is placed from the halter or bit of the rear left horse to the inside tug of the left lead horse.

Length measurements in the illustrations for the five- and six-horse hitch refer to the offset of the pull points on the different double-trees. The offset functions to equalize the pull of all the horses in the hitch. If measurements are not indicated, it means that the double-tree pulls from the center. A center pull double-tree is 30" between the outside pivot points.

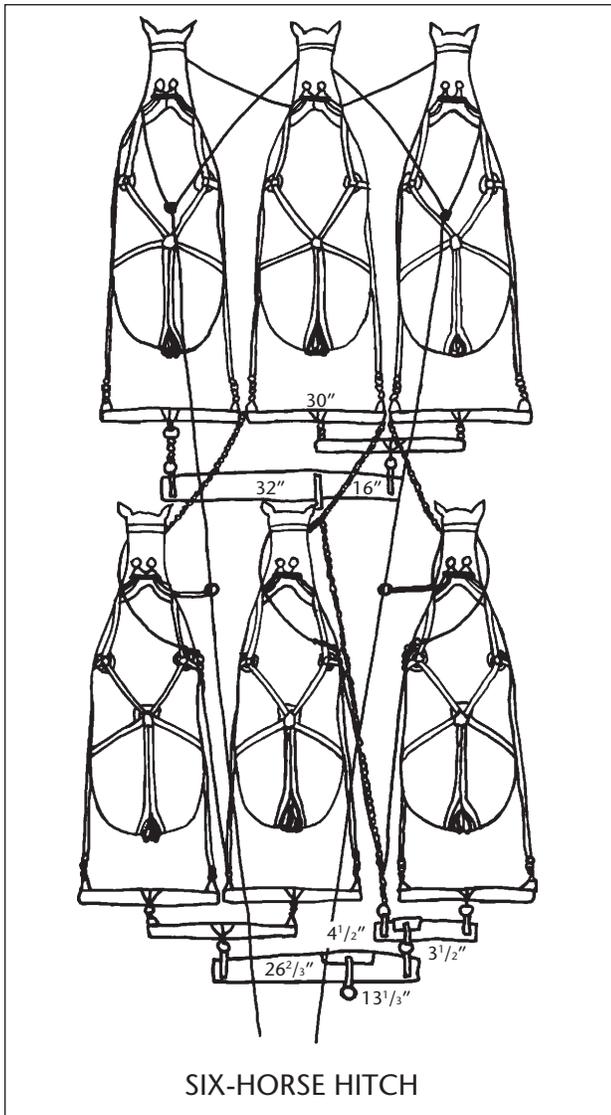
A study of the bucking-back system will show that if the rear horses should try to start before the leaders do, the draw chain would be pulled back and the rear horses would be forced to pull the load with their mouths. The rear horses, however, cannot get over the lead eveners if the buck ropes are properly adjusted, and if the load is heavy enough they cannot move it with their mouths. In case the rear horses try to run away, all the driver has to do is to keep the lead team in check, and the rear team will be automatically checked by having to draw the load with their mouths.

When tie chains and buck ropes are properly adjusted, moreover, the horse has several inches of play backward and forward; that is, he is not strung in tight while work-



ing. It is remarkable how quickly some teams learn to start and stop together, not even taking the slack out of the lead chains and buck ropes.

With the six-horse hitch hooked three and three, the draw chain pulls at a slight angle which does not, however, affect the direction of the implement.



SIX-HORSE HITCH

Types of Buck Straps And How to Use Them

Regular-leather crotch-rein buck strap—This is the best type of buck strap. They were used in California, Oregon, and Washington with 32-horse combine harvester teams. The checks, which have bolt snaps at the ends, are adjustable by means of a Conway loop so that in case a horse has a tendency to throw its head or to walk sideways, it can be corrected. The long part of the buck strap, or the part running from the check ring to the draft chain, is also adjustable according to the length of the horse and the tug. The snap at the end may be attached to the draft chain in the case of a horse working next to the chain.

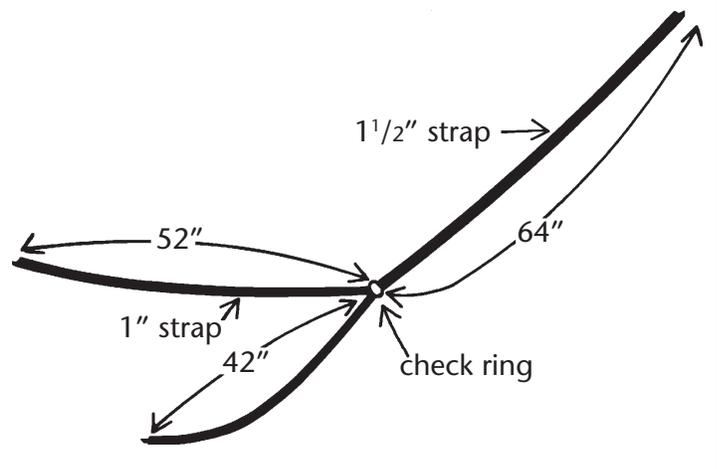
The buck straps of the outside horses in single chain equalizers are usually snapped into the single-tree of the next horse between them and the draft chain of the

equalizer (see illustrations for five-, six-, and twenty-horse hitches). Buck straps are usually adjusted so that they slightly loosen when the horse is in proper position, but tighten after the single-tree drops to the ground when the horse stops.

The two checks which extend from the ring in the end of the heavy strap (check ring, see buck strap illustration below) to the bridle bits also are adjustable and can be adjusted to make the animal walk straight if it tends to crowd. In unhitching, teamsters snap the rear end of the buck strap upon the hip portion of the harness at that point where regular tugs are usually fastened, and the bit snap to the hame line rings. The buck strap should be run through the hip strap loop to prevent the horse from stepping upon or over the buck strap and causing a disturbance in the team.

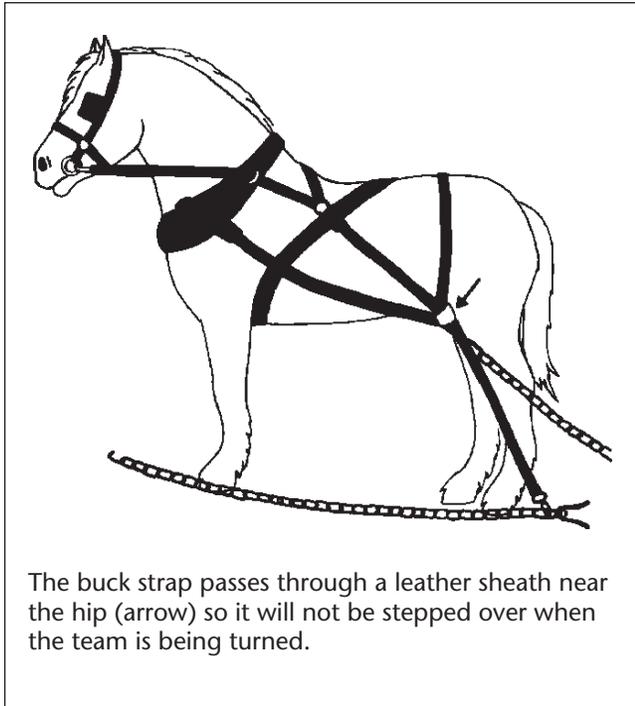
BUCK STRAP

The Conway buckles, Conway loops, and end belt snaps are not shown, but each strap will have them. Conway buckles are located along the run of each strap with the Conway loop formed by the doubling back of the strap to connect the end into the Conway buckle. The buck strap is attached with the strap through the slot on the buckle.



Bucking from the bridle—With this method the regular bridle rein is often used, usually lengthened out. A clamp can be placed on the bridle check rein, to adjust pull to either side. A rope, chain, or strap is snapped to the clamp and passes through the hip strap loop to some part of the equalizer or single-tree of the next horse.

Bucking from chin strap of halter bridle—This is a makeshift method more frequently used with string teams than with bunched teams. An ordinary halter tie extends from the chin strap to the draft chain.



Tying In—This is fastening the halter lead chain of a horse to the single-tree of the horse in front. It prevents him from loafing back. The tie can be straight ahead or across to prevent crowding.

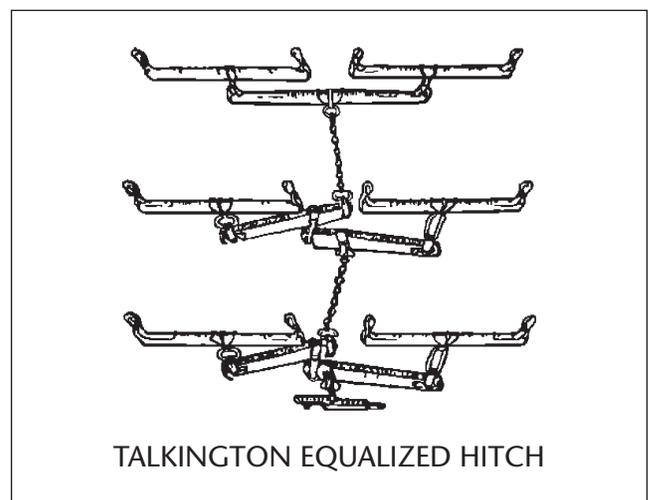
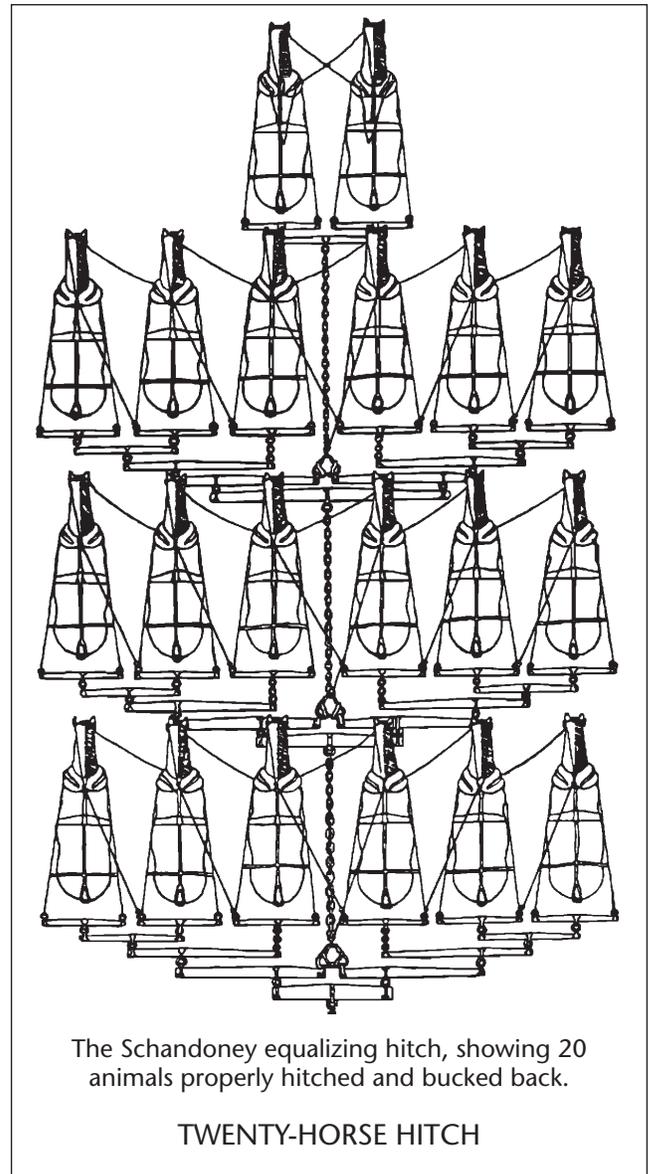
EQUALIZING HITCHES

Schandoney Equalizing Hitch

The Schandoney equalizing hitch is the original of the patented large team equalized hitches. It was patented by Peter Schandoney of Sacramento, California, in 1892. It is sometimes called the single draft-chain hitch, there being only one draft-chain in the hitch. Its advantages are its thorough equalization and simplicity. Its disadvantages are that it cannot be converted easily from a bunch team to a string-team hitch.

Talkington Equalized Hitch

The Talkington hitch was invented by a farmer near Harrington, Washington. The hitch was popular in the Big Bend section of Washington. The advantages claimed for it are flexibility, simplicity, and lightness. By changing the length of equalizer bars, it can be used either as a string or a bunch-team hitch.



FEEDING DRAFT HORSES

The horse is a roughage eater by nature but unfortunately humans, in an endeavor to achieve more rapid growth and development and greater performance, have tended to overlook this fact. Since the horse is produced and maintained for his athletic ability, energy is required for various types of activity rather than for fattening as in the case of market animals. During periods of heavy energy demand, concentrate feeds must be furnished since the horse's digestive tract is not large enough to allow enough roughage to be eaten to supply his energy needs. When energy requirements are low, as is the case with the mature idle horse, they can often be met by roughage alone.

A balanced ration for horses should provide nutrients required for body maintenance, growth, reproduction, and work. These nutrients include carbohydrates and fats (energy), protein, vitamins, minerals, and water.

Animals differ considerably in the amounts of energy they use. Voluntary feed consumption of mature animals will generally be 1.5 to 2.5% of body weight per day, the percentage depending on the roughage content of the ration and on individual variation. Growing foals and lactating mares may consume up to 3% of their body weight per day.

The extent to which a horse's rations are supplemented with proteins depends on the age of the horse and on the quality of the forage being consumed. Growing or lactating animals require somewhat more protein than those that are breeding or working.

The need for vitamins, as for other nutrients, depends on the forage base. The need for vitamins A and D is relatively constant but will increase if badly weathered or mature hay is being provided. The B-complex vitamins need not be added to the rations of most horses. When horses are under the stress of performance, racing or show, B vitamins should be added to ensure adequate intake.

Good pasture and free-choice minerals usually satisfy the nutrient requirements of mature horses performing up to medium levels of work and the requirements of mares during early gestation. If the pasture is primarily grass, a mineral mixture containing 2 parts of calcium to 1 part of phosphorus is recommended. If the pasture is primarily legume, the mixture should contain no more than 1 part of calcium (Ca) to 1 part of phosphorus (P). Salt is generally included in the mineral mixture to improve acceptability to the animals. Additional free-choice salt is recommended. Trace minerals may be included either in the salt or in the mineral mixture.

Energy

The daily nutrient requirements for horses depends on the daily energy intake, so the energy content of the ration must be given first consideration when the nutrient requirements are expressed as a percentage of the ration. Perhaps the best way to determine the adequacy of the energy intake of a horse is to observe its body condition.

Energy in a horse ration comes primarily from a carbohydrate source such as sugar, starch, and cellulose. Grains such as oats, barley, wheat, or corn contain much sugar or starch and are referred to as concentrated, or concentrate, sources of energy. Cellulose, making up the fiber in plants, is harder to digest and is in a less concentrated energy form.

Other groups of energy nutrients are fats and oils. These are of little concern in practical horse feeding.

The amount of energy (energy value) in feed is measured and shown by several systems. One system shows DE (digestible energy). Other systems might be metabolizable energy or net energy.

Protein

Protein can be furnished in the ration. Grass hays are lower in protein than legume hays. Grains have varying levels of protein, but are usually lower than legume hays. Supplements from the seeds of legumes have the highest protein content. Protein can be synthesized by bacteria in the cecum from non-protein nitrogen from plant or other sources. Researchers have fed non-protein sources with no ill effects, but this is not a common practice for horse owners.

Classification of Feeds

Roughages are relatively high in fiber and low in energy in relation to bulk or volume of the material.

- a. Roughages high in protein are alfalfa and the clovers. They are still fed primarily as a source of energy.
- b. Roughages said to be primarily a source of energy are timothy, various grass hays, and the cereal grain hays or straws.
- c. The feeding of palatable harvested feeds high in fiber allows for more continual access to feed by horses, which may reduce boredom and stress. Fiber, especially long-stem roughages, adds bulk to rations, which slows intake time. Fibrous carbohydrates are digested more slowly than non-fibrous

carbohydrates. Although research in horses is lacking, there may be a need for fiber that has a large particle size, and is more slowly digested, to maintain proper digestive functioning.

Concentrates are relatively high in energy and low in fiber in relation to their bulk.

- a. Concentrates fed primarily for their protein content are residues from plant or animal sources and are commonly called “protein supplements.” Cottonseed, soybean, or linseed oil meals are examples.
- b. Carbohydrate concentrates (cereal grains) are fed primarily as a source of energy. Some of these are barley, oats, corn, and wheat.

Nutritive Recommendations for Various Functions

All recommendations listed are from “Nutrient Requirements of Horses”, Sixth Edition, 2007, National Research Council (NRC). This reference should be consulted for requirements for horses of different sizes which are not listed in this bulletin.

Horses need to have an ample supply of clean water available at all times. Making free-choice loose salt available will encourage greater water consumption.

Growth

The growing phase is the foundation building phase and no period is more critical in determining how well the horse will be developed at maturity.

In general, a foal will subsist quite well on its dam’s milk for the first few months of its life, provided the mare has a sufficient supply of feed in a well-balanced ration. If optimum growth of the foal is to be achieved, it is desirable to provide a concentrate mixture containing a source of readily digestible energy and of a relatively high level of good quality protein, as well as a balance of minerals and vitamins. Creep feeding is particularly needed as the lactation period progresses and the mare’s milk flow declines because of time, mature or over mature pastures, or other nutritional factors.

It should be noted that the crude protein (CP) recommendation per unit of body weight decreases as the growing horse increases in size and approaches maturity. This is a reflection of the anabolic activity in the cells, resulting in the rapid increase in muscle mass early in the life of the growing animal.

The digestible energy (DE) recommendation also decreases per unit of body weight when the foal is not in training. It is important to note that the DE recommendation increases significantly when growth rate is increased or the foal is in training.

It is important to keep the calcium (Ca) to phosphorus (P) ratio near 1.5 :2.0 for proper bone development. The growth of the foal results in higher recommendations of Ca and P. Adding training or work does not increase the demand for Ca and P.

Reproduction

Recommendations for reproduction include not only those for the developing and growing fetus, but also for

**Daily Recommendations for Growing Horses at Several Stages
(Mature Weight = 900 kg = 1980 lb)**

<i>Body Wt kg (lb)</i>	<i>Daily Gain kg (lb)</i>	<i>DE Mcal</i>	<i>CP kg (lb)</i>	<i>Ca g</i>	<i>P g</i>
Weanling (4 mos) 303 (667)	1.52 (3.34)	23.9	1.20 (2.64)	70	39
Weanling (6 mos) 389 (855)	1.30 (2.86)	28.0	1.22 (2.68)	70	39
Yearling (12 mos) 578 (1271)	.82 (1.80)	33.8	1.52 (3.34)	68	38
Long Yearling (18 mos)					
Not in training 697 (1533)	.51 (1.12)	34.6	1.44 (3.17)	67	37
In light training 697 (1593)	.51 (1.12)	39.8	1.54 (3.39)	67	37
2 Yr Old (24 mos)					
Not in training 773 (1701)	.32 (.70)	33.7	1.39 (3.06)	66	37
In moderate training 773 (1701)	.32 (.70)	44.7	1.60 (3.52)	66	37

Note: Mcal = thousand calories, e.g., 23.9 Mcal = 23,900 calories

maintenance, growth (if maturity has not been attained), and work of the mare if it is being performed during pregnancy.

It is generally agreed, based on good evidence, that as with most species, the nutritional rigors of pregnancy in the horse are not enough to be of particular concern until the last 3 months of gestation. Prior to that time the development of the fetus and membranes are slow enough that the maintenance requirements will provide enough to take care of it.

**Daily Recommendations for Mature Pregnant Mares
(Mature Weight = 900 kg = 1980 lb)**

Stage of pregnancy	Daily Gain kg (lb)	DE Mcal	CP kg (lb)	Ca g	P g
First 5 mos		30.0	1.13 (2.49)	36	25
6th mo	.33 (.73)	31.4	1.27 (2.79)	36	25
9th mo	.74 (1.63)	34.8	1.43 (3.15)	65	47
11th mo	1.17 (2.57)	38.5	1.61 (3.54)	65	47

The increase of nutritional recommendations is a result of over half of the growth of the fetus taking place during the last 3 months of gestation. The increased demand for energy and protein is a result of this rapid fetal growth. Increases in calcium and phosphorus are to build fetal bone.

The stallion should have a high quality, well balanced ration at all times. The recommendations listed for maintenance and work should be sufficient (see tables on pages 22 and 23). The ration need not be elaborate or expensive. The proper combination of farm-grown feeds will usually meet the requirements.

Many stallion owners like to increase their horse's protein intake during the breeding season; although evidence of the efficacy of this practice is lacking, it is not harmful, just more expensive.

Be certain of sufficient mineral quantities in the ration and that they are in proper ratio. Provide vitamins as needed, prevent over-fatness, and provide plenty of exercise.

Lactation

As with the dairy cow, milk production puts the most severe nutritional demands upon the horse of any function except possibly hard work. The sharp increase in the recommendations of all nutrients is very evident in the following table.

**Daily Recommendations for Lactating Mares
(Mature Weight = 900 kg = 1980 lb)**

Stage of Lactation	Milk/day kg (lb)	DE Mcal	CP kg (lb)	Ca g	P g
1st month	29 (64)	54.4	2.76 (6.07)	106	69
3rd month	27 (59)	52.4	2.64 (5.81)	101	65
5th month	22 (48)	48.3	2.39 (5.26)	71	44

As the foal grows and begins to eat feed on its own, the demand for milk will gradually decrease and the nutritional requirements of the mare will gradually decrease accordingly. The mare is providing nutrition for the foal until it is replaced by the feed eaten on its own.

Work

Horses, with the exception of those kept strictly for breeding, are subjected to some level of work. Nutrient recommendations are often based on these three levels of work effort:

- Light work: 2–3 hours per day
- Medium work: 4–5 hours per day
- Heavy work: 6–8 hours per day

It must be recognized that the intensity of work within these levels may vary greatly. The “medium” worked horse may be called upon to expend more energy in 5 hours than the “heavily” worked horse is in 8 hours. Therefore, the recommendations based on these work levels must be used only as a rough guide. It is up to the horse owner to adjust the feed ration accordingly.

**Daily Recommendations for Working Horses
(Mature Weight = 900 kg = 1980 lb)**

Level of Work	DE Mcal	CP kg (lb)	Ca g	P g
Light	42.0	1.38 (3.04)	63	38
Medium	48.0	1.55 (3.41)	72	52
Heavy	62.1	1.81 (3.98)	72	52

Note: Light work is equivalent to “moderate exercise,” medium work to “heavy exercise,” and heavy work to “very heavy exercise” for riding horses as listed in “Nutrient Requirements of Horses” 6th ed., National Research Council.

There are substantial increases in the energy needs of working horses as would be expected when you consider that energy is the major expenditure in performing work. This rather notable increase in the need for energy

necessitates a change to higher energy feeds, particularly in the heavily worked horse.

Even though the recommendations for protein, calcium and phosphorus increase with increased work, the increases are less than the increase for energy. Protein is used primarily to rebuild muscle tissue. Calcium, phosphorus, and other minerals are lost at greater rates during work via sweating and urination. A good well balanced mineral mix with loose salt (fed free-choice) can easily meet the needs of the working horse.

Maintenance

Maintenance implies no expenditure of energy beyond the maintaining of life processes, with usually a small activity factor. Horses, like all creatures, vary considerably in their requirements for maintenance because of differences in basic metabolic rates. In horses we call these “easy keepers,” or “hard doers,” or “hard keepers.” Because of this, the recommendations in the following table should be used as a guideline only. An individual horse may need more or less than the recommended amount.

Daily Maintenance Recommendations for Mature Horses

Body Weight Kg (lb)	DE Mcal	CP kg (lb)	Ca g	P g
600 (1320)	20.0	.76 (1.67)	24	17
900 (1980)	30.0	1.34 (2.95)	36	25

Balancing Rations

In balancing rations for horses, the same basic information is needed as is needed for other classes of animals. The process of using the information is also no different. You need to have knowledge of the following to balance rations:

1. Nutrient content of the feeds to be used
2. Nutrient requirements of the animals to be fed

There are many sources of feed nutrient composition tables, or what are called “book” values. These are good as general references or examples, but to be certain you should have your feeds tested. Most Extension offices can help you get your feed tested and interpret the results. The biggest variations from book values, and between feeds of the same type, will be found in hays.

A ration is considered “balanced” when the amounts and combinations of feed ingredients meet the nutritional re-

quirements of the animal. To illustrate this, feed composition values will be used to balance some example rations.

Example Nutrient Composition of Selected Feedstuffs (All values on a dry matter (DM) basis):

Feed Name	DM %	DE Mcal/kg	CP %	Ca %	P %
<i>Concentrates</i>					
Barley grain, rolled	91	3.67	12.4	.06	.39
Corn grain, steam-flaked	88	3.88	9.4	.04	.30
Linseed meal, solvent	90	2.85	32.6	.40	.83
Oat grain, 32lb/bu	91	3.23	13.6	.07	.30
Soybean meal, solvent	89	3.52	49.9	.40	.71
<i>Forages</i>					
Grass hay, cool season, mid-maturity	84	2.18	13.3	.66	.29
Legume forage hay, mid-maturity	84	2.43	20.8	1.37	.30
Mix grass + legume hay, mid maturity	85	2.30	18.4	1.04	.32
Oat hay, headed	85	2.16	9.1	.37	.22
Wheat hay, headed	86	2.14	9.4	.31	.20

The first example will illustrate balancing a ration for a 900 kg horse at maintenance level just using grass hay.

	DE Mcal	CP kg	Ca g	P g
Daily Requirements	30.0	1.34	36	25
13.8 kg grass hay	30.1	1.84	91	40
	+1	+50	+55	+15

As you can see this ration meets or exceeds the recommendations for DE, CP, calcium, and phosphorus. The amount of hay was derived at by dividing the required amount of DE by the DE per kilogram of hay. Even though the calcium and phosphorus show an excess, the ratio is still not much over the desired range, so this should not cause a problem.

The next example will be for a growing yearling (12 months old, body weight = 578 kg and daily gain = .82 kg). First let's see if we can balance the ration with the mixed grass + legume hay only.

	DE Mcal	CP kg	Ca g	P g
Requirements	33.8	1.52	68	38
14.7 kg mixed grass + legume hay	33.8	2.70	152	47
	=	+1.18	+84	+11

At first glance this ration looks adequate, because it meets or exceeds these nutrient recommendations. The problem is that this is too much hay for this size of horse to consume. The calcium to phosphorus ratio (Ca:P) (3.2:1) is also extremely out of balance; in growing foals this can cause an inflammation of the growth plates of the hocks, called epiphysitis.

So what can we do to balance the ration better, and lower the amount of hay that must be consumed? One option is to add a grain, and lower the amount of hay in the ration. Let's begin by looking at the grains we have available. The three best choices to lower the calcium level are barley, corn, and oats. Using the corn may lower the protein too much, but it will be the best for lowering the calcium. Oats have more protein, but a higher Ca to P ratio. What about barley?

	<i>DE</i> <i>Mcal</i>	<i>CP</i> <i>kg</i>	<i>Ca</i> <i>g</i>	<i>P</i> <i>g</i>
Requirements	33.8	1.52	68	38
10.0 kg mixed grass + legume hay	23.0	1.84	104	32
3.0 kg barley grain, rolled	11.0	.37	2	12
	<u>34.0</u>	<u>2.21</u>	<u>106</u>	<u>44</u>
	+2	+.69	+38	+6

This is better, but the Ca:P ration is still 2.4:1, which is a little high.

Without feeding higher levels of grain and lower levels of this hay it will be difficult to bring the Ca:P ratio into the desired range by feeding just the feeds we have available for the example. What is suggested is the supplementation of the ration with a free-choice mineral mix that is relatively high in phosphorus.

Now let's look at an example ration for a mature 900 kg horse at medium work.

	<i>DE</i> <i>Mcal</i>	<i>CP</i> <i>kg</i>	<i>Ca</i> <i>g</i>	<i>P</i> <i>g</i>
Requirements	48.0	1.55	72	52
13.8 Grass hay	30.1	1.84	91	40
4.9 kg barley grain, rolled	18.0	.61	3	19
	<u>48.1</u>	<u>2.45</u>	<u>94</u>	<u>59</u>
	+1	+.9	+22	+7

This ration meets or exceeds the requirements and the Ca:P ratio of 1.6:1 is within the recommendation. If corn was used instead of barley, the protein excess would decrease.

Major Feed Deficiencies

Feed deficiencies are of two kinds:

1. Man-made as the result of poor management and feeding practices.
2. Area deficiencies—primarily mineral deficiencies from a lack in the soil.

Important deficiencies ranked:

1. Energy—just plain not enough to eat. Increasing total feed intake can show dramatic recovery from many so-called minor element deficiencies and diseases.
2. Protein—a lack of protein aggravates a lack of total energy in the ration. Increasing protein doesn't help much if not enough total energy is present. Protein is expensive and often promoted for use when total energy should be increased in a ration instead.

Use of Supplements

Numerous supplements are recognized in the United States today. Any feed can be called a supplement under certain circumstances.

Energy supplements—Needed when range or pasture is short, when poor or low quality hay is fed, or when nutritional requirements are high, such as during lactation, growth, or work.

Protein supplements—Often needed when grass hay or straw is fed, or the pasture is of poor quality. Especially important for young, growing horses.

Vitamin supplements—Needed when performance of the horse indicates vitamin deficiency. Most horses do not need a vitamin supplement if they are being fed a well-balanced ration that includes fresh green pasture or properly cured hay.

Mineral supplements—Needed when natural feed sources do not contain enough minerals. Salt is commonly fed free-choice. Loose salt is better than block salt, because horses can not get enough to meet requirements by licking a block. Trace minerals may be needed in certain areas and are good insurance. Selenium is one trace mineral that can be a real problem with horses. Selenium deficiency is thought to be related to “tying up syndrome” and retained placentas. The soils in some geographic areas are very deficient in selenium. Mineral supplements with higher levels of selenium are recommended in these areas.

Non-nutritive supplements—These feed additives cannot compensate for inadequate nutrition in the feeding of horses.

Thumbnail Feeding and Management Recommendations

1. Two percent of body weight per day of grass hay for an idle horse. Higher quality hay can be fed at a lower rate.
2. Three-to-one substitution of hay for grain (3lb:1lb or 3kg:1kg).
3. Green pastures are adequate for mature, idle horses. Dry pastures are low in protein and phosphorus, and can be low in energy if not enough dry forage is available.
4. Warm the drinking water in cold weather to at least 40°F. This will encourage the consumption of more water improving the digestive functioning and general health of the horse. It will also help stretch the feed supply as energy from the horse's body is not needed to warm the consumed water.
5. If low quality dry roughages or pelleted feeds are fed, an ample supply of good water is important.
6. Provide a shed or windbreak to keep horses from burning up energy to keep warm.
7. Young horses not on pasture should have a well-balanced ration to meet their needs for growth.
8. Water and salt are the cheapest feeds of all. Be sure the horse has plenty.
9. Salt and mineral mixes are best supplied loose (rather than in block form). The amount of mineral consumed can be controlled by varying the percent of salt in a mix. Usually a 1:1 mix works well.
10. Summer is the time to plan for your winter hay needs. Hay is usually cheaper just after harvest. During winter, hay can become scarce, and very expensive.
11. It is recommended that you have your hay tested. Different hays can vary in their nutrient compositions. Most county Extension offices can help you with hay sampling, lab location, and results interpretation. "Book values" of feeds can be found in "Nutrient Requirements of Horses", Sixth Edition, 2007, National Research Council.

GLOSSARY

Belt snap—Like a regular snap with the attachment end having a flat slot for a leather strap to connect to, as a Conway loop.

Butt chain or draft chain—A section of chain that links the trace to the single-tree.

Check—Also known as a checkrein, any of various rein configurations for the purpose of maintaining the appropriate head position of a horse. The check can be attached to a hook on the harness saddle or collar. Check can also refer to a branch rein connecting the driving rein of one horse of a pair with the bit of the other. Examples: over check—a rein which goes from the bit over the face (in an X shape) then to the water hook on the harness saddle or collar; side check—a rein which goes from the bit through a ring on the side of the browband and then to the water hook on the harness saddle or collar.

Collar—A device used to distribute load around a horse's neck, for pulling a wagon or plow.

Conway buckle (and loop)—A two-ended buckle with a solid center-post tongue. It is used to make a loop (Conway loop) by doubling back the end of the strap after it has been run through both ends of the buckle and securing it on the tongue under the main part of the strap.

Crupper—A leather strap looped under a horse's tail and attached to a harness or saddle to keep it from slipping forward.

Double-tree—A crossbar on a wagon or carriage to which two single-trees are attached for harnessing two animals abreast.

Equalizer—Any adjustable strap that balances out the strap lengths to fit different sizes of horses.

Hame—One of the two curved wooden or metal pieces of a harness that fits around the neck of a draft animal and to which the traces are attached.

Single-tree—A crossbar, pivoted at the middle, to which the traces of the horse's harness were fastened for pulling a wagon, sled, etc.

Trace or tug—A heavy strap along the side of the horse that connects the hame to the butt chain.



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