The Farm Horse
Its Feeding, Care, and Breeding

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RENEWED INTEREST in "home-grown" power has been shown by Illinois farmers in recent years as the result of low crop prices and the development of hitches for working horses in larger units.

For the first time in many years mares are bringing more money on the market than geldings. Farmers apparently are realizing the seriousness of the decline in available work stock and are taking steps to raise colts. While horse breeding as a specialty may be advisable for only a limited number of farmers, the raising of colts for replacement purposes and occasional sale is almost certain to be profitable on a farm adapted to the enterprise.

Because many of the younger farmers lack experience with some phases of horse management, this circular covers details that it might not have been necessary to cover twenty years ago. It aims to answer the increasing number of questions that farmers are asking concerning the feeding, care, breeding, and selection of farm horses.

CONTENTS

<table>
<thead>
<tr>
<th>Topic</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>FEEDING FARM HORSES</td>
<td>3</td>
</tr>
<tr>
<td>CONDITIONING AND SELLING HORSES</td>
<td>11</td>
</tr>
<tr>
<td>THE FARM HORSE IN HOT WEATHER</td>
<td>12</td>
</tr>
<tr>
<td>THE DRAFT STALLION</td>
<td>13</td>
</tr>
<tr>
<td>THE BROOD MARE</td>
<td>18</td>
</tr>
<tr>
<td>CARE OF THE YOUNG FOAL</td>
<td>23</td>
</tr>
<tr>
<td>FEEDING THE YEARLING AND TWO- AND THREE-YEAR-OLDS</td>
<td>24</td>
</tr>
<tr>
<td>TRAINING THE YOUNG COLT</td>
<td>25</td>
</tr>
<tr>
<td>FIT AND CARE OF HARNESS</td>
<td>29</td>
</tr>
<tr>
<td>CARE OF FEET</td>
<td>30</td>
</tr>
<tr>
<td>COMFORT OF HORSE IMPORTANT</td>
<td>31</td>
</tr>
<tr>
<td>TYPE OF HORSE NOW IN DEMAND</td>
<td>34</td>
</tr>
<tr>
<td>AMOUNTS OF FEED USED PER WORK HORSE PER YEAR</td>
<td>36</td>
</tr>
</tbody>
</table>

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HORSES AND MULES of good type and properly used are recognized as economical and effective sources of draw-bar power on all kinds and sizes of Illinois farms. They are large users of farm products and furnish farm power at low cash costs.

Well-balanced farms that are under a good rotation and on which all or a large part of the crops produced are fed to livestock are especially fitted to use horse labor to advantage. Such farms not only provide a greater amount of work that horses can do, but they spread this work over a larger part of the year. From the latter standpoint, systems of farming that permit a large amount of fall plowing are a big advantage to the user of horses.

Good farming methods as related to rotations, livestock, fertility, and farm lay-out are all a help toward the satisfactory use and production of work horses. Good rotations and a fertile soil provide more and better quality horse feed, and a fertile soil, containing sufficient organic matter, is more easily tilled.

The "big-team" hitches that have been developed and widely used in late years have added greatly to the saving of man labor and the effective use of horses and mules in all kinds of soil-preparation work.¹

FEEDING FARM HORSES

The skill with which horses are fed largely determines their thrift, usefulness, and length of life. By intelligent feeding it is also possible to reduce considerably the cost of keeping horses, for 50 to 70 percent of the cost of their keep is chargeable to feed.

General Considerations in Feeding

Feed for long-time efficiency. Meat animals are fed and "turned off" usually after a rather short feeding period. Horses are fed for the service they will render over a considerable number of years.

Long-time efficiency rather than temporary economy should therefore be the aim in feeding horses.

Use a variety of feeds. In order to fill all the requirements of a ration—nutrients of the proper amount and proportions, bulk enough for safety in digestion, and a high degree of palatability—it is important that a variety of feeds be used.

Feed according to individual needs. Horses probably vary more than other farm stock in individual feed requirements. Age, temperament, and type of horse, as well as kind and amount of work done and the season, all influence individual needs.

Feed according to the job. Failure to adjust feed to the work being done causes the waste of much feed and occasionally results in the loss of good horses. For hard-worked, full-fed horses the cutting of the grain ration fully one-half on idle days will go far toward preventing attacks of that costly disease known as azoturia, or more commonly as "Monday morning disease." Overfeeding may also cause laminitis, or founder.

Use only feeds of good quality. Horses may safely eat considerable quantities of cheap, coarse, rough feed if it is wholesome. The horse, however, is not a satisfactory animal thru which to market moldy, musty, dusty, or otherwise damaged feed. Heaves are usually associated with the consumption of large quantities of poor-quality roughage, and colic and other digestive disturbances not infrequently follow the use of damaged feeds.

Be punctual about feeding times. The horse is a creature of habit and shows his appreciation of punctuality, regularity, and cleanliness in feeding by increased thrift.

Home-grown rations are cheapest. Farm horses are usually fed most cheaply on home-grown rations. Very satisfactory rations may be composed entirely or almost entirely of home-grown feeds.

Amounts of feed and frequency of feeding. The weight of the individual horse and the presence or lack of thrift and spirit are tests of the adequateness of a ration. Observation of the appetite and the dung tells much as to digestion. While no rules will take the place of experienced observation, the following may be taken as rough guides of the amounts of feed which horses require.

1. Horses at severe work usually do not need more than a pound of hay per hundredweight daily, but the grain ration should be approximately $1\frac{1}{4}$ pounds per hundredweight daily.
2. For horses at light work the grain should be reduced and the hay increased proportionately.

3. Idle or very lightly worked horses should be fed still bulkier rations.

In tests at the Illinois Station geldings and dry mares fed a pound of grain and a pound of hay per hundredweight daily for a year remained in excellent health and gained weight, tho they were worked two or three times as many hours as the average farm horse. The grain mixture consisted of 2 parts ear corn to 1 part oats. The hay consisted of all red clover, all alfalfa, or 1 part timothy and 1 part legume hay. When these same horses were worked hard on only .88 pound of grain and .85 pound of hay per hundredweight daily, thru a 140-day feeding period, they lost weight.

Grain feeds are usually divided into three equal feedings a day. The hay ration is best fed one-half at night and the other half divided equally between the morning and noon feedings.

There is less time to eat hay in the morning and at noon than at night and furthermore a horse works more comfortably if its digestive tract is not unduly distended with hay. Sometimes no hay at all is fed at noon, tho most experienced team owners prefer to give a light feeding then.

Farm horses are sometimes fed too much hay, a poor practice from the standpoint of health as well as economy. When hay of good quality is fed, it is a good rule to feed it “to an empty manger.”

Oats and Corn Standard Grains for Horses

Oats and corn are standard grains for horses on Illinois farms. Oats contain more protein, ash, and fiber (hull) than corn but are much lower in energy value. Oats are a somewhat safer feed than corn to feed as the sole grain ration with a nonleguminous hay such as timothy, as they are less concentrated. They are also a more suitable feed to use in hot weather.

Altho corn has the highest energy value of any commonly available feed, it is not suitable for use as the sole grain with a nonleguminous roughage for a long period even for mature work horses. It is lacking in both protein and mineral matter.

Corn for horses must be sound. Trouble often follows the feeding of moldy corn. It is especially important that corn grown for horse feed should be free from disease and should be of a type that will mature in the locality where it is grown. Legume hay fed with corn greatly improves the protein, mineral, and vitamin content of the
ration. Protein concentrates are also satisfactory for balancing the corn ration, but they are usually more expensive than home-grown legumes.

As a grain feed for work horses, equal parts of ear corn and oats are frequently fed together. This mixture has the advantage of being eaten more slowly than oats fed alone. When legume hay is fed, the amount of corn may be increased to two-thirds of the grain ration.

Barley, wheat, and rye are also occasionally fed to horses. These feeds require crushing or grinding. Wheat and rye should be fed in limited amounts and mixed with other feeds in order to prevent digestive disturbances following their use.

By-Product Supplements

Bran and linseed meal are the supplements commonly fed to horses.

*Bran,* because of its bulk and its protein and mineral content, is rightly held in high regard from a health standpoint. It is used both as a regular part of the grain ration and as a weekly or twice-weekly mash in place of the usual evening meal. Oats, 4 parts, and bran, 1 part (by weight), make a good grain ration when fed with timothy or other grass hay. When mixed hay is fed, 10 percent (by weight) of bran with oats or corn is sufficient.

Three to 5 pounds of dry bran, a tablespoonful of salt, and enough water (hot in winter) to make a crumbly mass is the usual formula for making a bran mash.

Wet bran is more laxative than dry bran. Bran mashes are excellent for sick or convalescent horses. When no legume hay is available, bran mashes add safety to the ration of horses being “roughed” thru the winter on coarse, dry feed. Skilled horse feeders always have available a few sacks of bran, even tho they may not use it in large quantities. Legume hay and pasture in season will, at least to a considerable extent, take the place of bran in feeding farm horses.

*Linseed meal* is a protein concentrate. Aside from its feed value, which is high, it acts as a laxative and conditioner. From 1 to 1½ pounds a day are the usual amounts fed; more may prove too laxative.¹ The feeding of linseed meal makes for healthy skins and glossy coats. It is an aid in shedding the long winter coat in the spring. Money invested in linseed meal or bran will usually bring about much more in the way of improved thrift than money spent for so-called “condition powders.”

¹McCannell, of Kansas, after a trial involving 150 artillery horses at Ft. Riley, concluded that a pound of old-process linseed meal, when fed with corn, oats, and prairie hay, is equal to 4 pounds of bran.
Merits of Timothy and Alfalfa

Timothy hay, tho relatively low in valuable nutrients and yield per acre compared with the legumes, still has an important place in the feeding of horses. It is a safe hay for work horses fed a grain ration high in protein and minerals. The seed is cheap; it is easy to get a stand of timothy that holds well; and the crop is usually readily cured into hay that is sound and free from dust.

Feeding one-half to two-thirds timothy and a legume for the balance of the day's hay ration is a good practice. From the standpoint of both nutrients and palatability, timothy hay when it is to be used as a horse feed should be cut somewhat earlier than usual and should be well cured. Timothy seeded along with red clover, alsike, or alfalfa is recommended for hay.

Timothy hay and ear corn do not make a satisfactory ration for horses. This is particularly true when the timothy hay is over-ripe.

Alfalfa is regarded as the most valuable of the legume hays for horses because of its much greater acre-yield of nutrients, digestible crude protein, total digestible nutrients, and net energy. Its use in place of all or part of the timothy usually fed work horses means a substantial saving of grain. Since both red clover and soybean hay compare favorably with alfalfa of equal grade, much of this discussion regarding alfalfa applies to these other legumes with equal force.

Good alfalfa hay is both nutritious and highly palatable, but it may be easily spoiled in the making and become moldy. The following points must be observed if alfalfa hay is to be fed successfully:

1. Alfalfa hay should be sound. When alfalfa is fed to work horses as a considerable portion of the hay ration, it should be well matured, properly cured, and preferably the first cutting. First cuttings are more stemmy and less leafy than later cuttings and also less washy. This kind of hay seldom proves too laxative. When alfalfa is fed as a concentrate (and it may be so regarded) in small quantities in the place of bran, high-quality, leafy, green hay should be used.

2. Alfalfa hay should be fed in limited quantities. One pound to the hundredweight of horse per day is the maximum amount of alfalfa to feed when it is the only hay in the ration. Alfalfa cannot be satis-
factorily fed according to appetite. Much of the criticism of its use for horses has resulted from overfeeding it.

On the basis of twenty-five years of experience with the feeding of alfalfa to horses, the authors recommend using it for one-third to one-half the total daily hay ration, the balance of the hay to be made up of grasses. Oat straw instead of a grass hay may be used during cold weather. Alfalfa fed in this way does not result in the overfeeding of protein, and it is safer and usually more economical than feeding it in larger amounts.

**Wider Use of Sheaf Oats**

Sheaf oats are a desirable feed to use with legume hay or legume pasture, and should have a wider use than they are given at present. In the commonly grown early varieties of oats, the weights of oats and straw are about equal.

Bright, well-cured sheaf oats are surprisingly palatable if care is taken in cutting, shocking, and curing them. Oats cut too green or containing a heavy growth of weeds or sweet clover are causes of musty, unpalatable, and unsafe feed. The sheaves should be stored in the mow and stacked away from hay and the sides of the mow. This precaution will keep mice from working in from the sides and will reduce damage from that source.

Because the straw is used and the cost of threshing saved, this method of feeding oats makes them a more profitable crop.

**Pasture and Succulent Feeds**

A sufficient acreage of good pasture not only promotes health and comfort of work horses, but reduces costs of feed and barn labor. More than one kind of pasture is needed for best results. A bluegrass sod for early and late pasture provides nutritious, safe feed during those seasons of the year. During the summer, pasture mixtures containing considerable clover yield more abundant feed than bluegrass. Sudan grass is a rapid-growing plant which provides a large amount of palatable forage during the summer.

The feed-producing capacity of horse pastures is increased by grazing them part of the time with cattle, because cattle graze more evenly than horses and eat the coarser grasses more readily. The use of pastures grown in the rotation helps to keep down parasitic infestation. Small permanent pastures used the year around by horses become filthy and frequently are heavily infested with internal parasites. Horses or colts grazed on them are apt in turn to become infested.
Pasture is usually too washy for work horses until the corn crop is planted. After that time pasturing horses at night and during idle days, with access to water, will cut down the amounts of grain and hay that are needed to maintain strength and weight.

Carrots are the best succulent feed for stabled horses; they are an excellent source of vitamin A and a good source of vitamins B, C, and G. As a source of calcium they are rather high among the vegetables. They have a beneficial effect on the whole digestive system. Horses soon become fond of them. Before being fed, carrots should be washed and run thru a root-slicer or cut lengthwise. Two to four pounds a day are sufficient. The expense of growing carrots is ordinarily too great to permit their use except in such special cases as the feeding of show horses or valuable breeding animals.

Silage is seldom fed to work horses. Silage made from mature and soundly preserved corn is sometimes fed to idle horses. Ten to 15 pounds a day is the usual amount. The use of silage for horse feeding is a practice of doubtful value, for if carelessly fed it is likely to do much damage. Moldy silage is a dangerous feed.

Preparation of Feed

The saving in grain consumption by grinding corn and oats, crushing oats, or chaffing hay for farm horses having sound teeth is usually not enough to justify the expense, judging from experimental evidence. Freshly crushed oats, on the other hand, are a palatable, safe, bulky grain feed, and an oats crusher is a valued piece of equipment in the stables of many professional horsemen and some farmers.

Salt and Water

Attention to the supply of salt and water is of utmost importance in horse feeding. Salt requirements must be met either by bulk salt fed with the grain or by block or bulk salt fed free-choice. Hudson of Michigan recommends that horses be given free access to salt at all times, since their individual requirements are so different.

Water, grain, and hay is the order of feeding in many stables. With frequent watering, there is little likelihood that too much will be taken at one time. Stabled horses appreciate a drink when the last rounds are made for the night.

Wintering the Idle Horse

Economy in wintering idle farm horses, like many other good practices, may be easily overdone. Many hundreds of horses in the corn
belt are fed and cared for each winter so poorly that they are almost unfit for hard work when spring comes.

Poor care results in lowered resistance and unnecessary losses from disease during the winter or when the horses go into hard work in the spring. The farm horse that finishes the winter in vigorous condition, neither skin-poor nor overfat, but with ribs just nicely covered, can be put into shape for hard work in two weeks of careful feeding and moderate work. This same horse, well fed during the spring season of hard work, can be carried along on a very moderate amount of stable-feeding when the work lightens and pasture has passed the washy stage.

Roughage. Such coarse roughages as oat straw, corn stover, and sorghum fodder can be used satisfactorily for a considerable part, tho not all, of the winter rations of idle mature work horses. They are not satisfactory for growing animals and breeding stock since they provide little bone and muscle-forming material.

Stalk fields. In some years stalk fields furnish fairly satisfactory feed, tho stalk fields alone cannot furnish adequate feed and shelter for an idle horse. The exercise and fresh air obtained in the stalk field may be beneficial, but the value of the feed obtained, especially late in the season when the ground is likely to be soft, is often more than offset by the damage done to the field by the trampling of the animals.

The effect of improper care during winter and spring was illustrated in June, 1933. June followed a very wet May and, because of the condition of the fields and the extreme heat, was a trying time in which to work horses. Horses kept in the stalk fields until late in the season were able to accomplish little when put to work and the mortality was high. They were thin, poorly fed, and long-haired. Horses properly fed and exercised during the winter were many times more useful.

Hay. One feed a day of legume hay, such as clover, alfalfa, soybean, or cowpea, where these are grown, is advisable for idle work horses. This feed should be given in the evening with free access allowed to straw or other roughage during the day. If no legume hay is supplied, at least a small amount of grain should be fed.

Grain. The amount of grain required to keep an idle horse in good condition during the winter depends to a great extent upon the

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3B. A. Dunbar, at the South Dakota Agricultural College, after exhaustive tests, concluded that the feeding of oat straw alone, even for a few months each year, works permanent damage to the general health and efficiency of a horse.
kind and quality of roughage fed. If some good legume hay is used, little, if any, grain is needed since such hay helps to supply the necessary food materials and keeps the bowels in good condition. One or two bran mashes a week are good, cheap health insurance. Some legume hay, bran, a handful or two of linseed meal, or a few roots will prevent impaction of the digestive organs, "straw-colic," and similar troubles.

**Exercise.** Exercise is necessary if horses are to be kept in good health. A bluegrass pasture that has been allowed to grow up during the late summer and early fall will provide not only a good place to exercise, but considerable good picking as well. Small lots and straw yards, unless used in connection with a larger area, are not satisfactory because horses do not move about in them enough.

**Shelter.** Stack yards or timber sometimes furnish sufficient shelter for horses, tho it is usually more satisfactory to feed and bed horses in an open shed or in the barn.

**CONDITIONING AND SELLING HORSES**

Horses sell to better advantage when fat; the extra condition not only rounds them out but produces a much better appearing coat of hair. The thin, long-haired horse always sells at a disadvantage; he does not ship well and is more subject to sickness, particularly respiratory diseases, than is a well-conditioned horse.

A horse that is worked moderately or otherwise exercised as he is being fattened is a more valuable horse to the buyer than the closely confined, stall-fed horse. There is less tendency than formerly to go to extremes in feeding and limiting the exercise of draft horses being fattened for sale.

Feeding tests in fattening geldings for market, conducted at the Illinois Station a number of years ago, indicated a much greater value for legume hays than for timothy. In one of these tests clover hay produced 58 percent greater gain than timothy. A mixed ration of corn and oats, when fed with clover hay, is more efficient than a single grain ration of corn. A ration of corn, oats, and timothy is not satisfactory for producing finish in horses fattened for market. The addition of linseed meal materially improves this ration.

The demand for horses and mules is seasonal; it is chiefly a farm demand and starts earliest in the south. On farms where colts are regularly raised, it is often possible to sell a team of older horses when a pair of three-year-olds is ready for work, and thus reduce the depreciation incident to advanced age. Horses should be bought for
farm work well in advance of the time they will be needed. Not only may horses be bought for less if purchased early, but time is also allowed for recovery from shipping fever, which is frequent, before the horses are needed in the fields.

THE FARM HORSE IN HOT WEATHER

Good “hot-weather” horses owe their ability to withstand high temperatures partly to heredity and partly to good condition resulting from skilled management in watering, feeding, and working them. Heat stroke can be completely prevented by knowing horses and caring for them properly.

The vigorous, muscular condition in horses that is essential for hot-weather success can be obtained by giving them steady work during the early part of the season. When the weather does not permit field work, road dragging or even “made work” can be resorted to in order to get and keep horses in condition to stand a hard day’s work.

The feeding of rations that will keep the bowels in healthy condition is important in developing heat resistance. “Dry-dung” horses are particularly likely to suffer from heat. Pasture at night, when it is green, will serve as a bowel regulator. If horses are on dry, burned-out pastures, it may be necessary to feed them some legume hay or bran.

When horses are doing hard field work during hot weather, a barrel of water and a pail should be taken to the field and the horses watered once an hour. A man would not be expected to work hard for five hours in the harvest field in hot weather without a drink. Why should we ask horses to do so? In extremely hot weather it may be necessary to reduce working hours and lighten the load. The noon rest period may be lengthened or work begun very early in the morning and stopped before noon. Some farmers have successfully worked their horses at night.

Horses that refuse their feed should not be sent to the field but should be kept in the barn or on pasture where there is shade. When the sweat “dries in,” and the horse starts to pant and gets “wobbly” in his gait, he has been overworked. The careful horseman will stop and rest his team before this stage is reached. An overheated horse should be got into the shade and cold water or ice bags applied to his head, spine, and legs. Heart stimulants such as camphorated oil are useful. Bad cases are difficult even for the veterinarian. Prevention is important. The horse, once overheated, even tho he recovers, is seldom able to do hard work during hot weather.
Treatment for horse parasites is important in horse management, as parasite-treated horses withstand summer heat better than untreated horses.¹

**THE DRAFT STALLION**

Selecting the Right Kind of Stallion

The selection and purchase of a good breeding stallion is a task usually requiring skill and patience as well as funds. Every feasible precaution should be taken to insure the success of the enterprise.

*Type, soundness,* and the *previous training* of the stallion are important. In judging the soundness of an animal, the opinion of a capable and experienced veterinarian may be necessary. The buyer can well afford to pay more for a stallion which has been raised and used under healthful, normal conditions. Colts raised in the open on good pasture are likely to be more satisfactory as breeders than those raised under close confinement. If older stallions are kept in moderate condition, regularly exercised, and not overused, they usually remain sure breeders to an advanced age.

A draft stallion that will add twenty-five to fifty dollars to the selling price of his three-year-old colts as compared to the sums received for the "mine-run" of colts of that age is a valuable financial asset to the farm community where he stands.

Since the purchase of a stallion may require a considerable sum of money, some form of partnership ownership is frequently resorted to. This cooperative ownership is likely to succeed when a good sire is purchased at a reasonable price and a good home and caretaker are secured for him. Some "company" stallions have failed because of the ignorance and neglect of their caretakers. There is no fundamental reason, however, why a group of business farmers cannot buy a draft stallion cooperatively and make a success of his ownership.

Private ownership has the advantage of simplicity in management. Whenever a stallioner maintains a good stallion for community patronage and handles his breeding business in a sanitary, workmanlike manner, his service should be recognized by the prompt payment of service fees.

Foals and yearling stallions may be bought at considerably lower prices than mature stallions and developed on the farm where they are to be used. This practice is somewhat hazardous, however, because of the uncertainty concerning the ultimate development of a youngster.

FIG. 1.—OUTSTANDING REPRESENTATIVES OF DRAFT BREEDS

(Upper) This Percheron stallion has draft horse type combined with the majestic bearing usually found in impressive sires. (Lower) This splendid Shire type has heavy clean, flat bone, and big, strong, well-set joints. His shoulder has length and slope and his top line is level. (See records, page 37).
Fig. 1.—Outstanding Representatives of Draft Breeds (cont.)

(Upper) This Belgian stallion has the short strong back, deep middle, and heavy muscling characteristic of this breed. He also has an attractive front and clean, flat quality bone. (Lower) Clydesdale breeders are particular about feet, legs, and action. This Clydesdale stallion has large feet, sloping pasterns, flat cannons, and clean-cut hocks. (See records, page 37).
This uncertainty can be eliminated to an appreciable extent by selecting only individually good sons of sound, good-breeding sires and dams. The consideration of family merit is important in the purchase of breeding stock.

**Care of the Stallion in His Season**

Stallions vary considerably in their capacity for "turning-off" mares. If vigorous and well cared for, the two-year-old draft stallion may be safely bred to 10 or 12 mares at the rate of 2 or 3 a week. Some good breeders prefer not to use a two-year-old stallion. A three-year-old may be bred to 30 or 40 mares; a four-year-old to 50 or 60; and a mature horse in a four months' season to 100 mares. A mature stallion, if limited to two mares on week days and none on Sunday, will usually remain virile longer than a stallion which covers a greater number of mares per day.

Never breed mares that have fever or that have a discharge indicating disease of the reproductive organs. These conditions warrant veterinary examination and treatment. Nothing is gained by breeding such mares, and there is grave danger of ruining the mare's breeding qualities and spreading genital infections to other mares. Diseased mares are very unlikely to get in foal and if they do may abort or have weak, diseased foals. At horse-breeding establishments, where very careful sanitary precautions are taken, it is customary, during the season, to wash the sheath and organ each morning with Castile soap and water and rinse with clear, warm water. A similar washing follows breeding. It is also advisable to wash and carefully rinse the external genitals and the underside of the mare's tail before breeding. This and the washing of the udder is good practice previous to foaling.

The best proof of a stallion's potency is a crop of normal, healthy foals from his season's service. A microscopic examination of the semen is helpful to a trained person in determining a stallion's ability to beget foals; the appearance of the stallion is not a criterion of breeding ability. The purchaser of a valuable stallion of breeding age should be protected thru the vendor's written guarantee as to breeding qualities. The reputation of the individual or firm back of the warranty is of greater importance than the wording of the document.

**Feeding the Stallion**

The choicest, soundest feeds should be reserved for a valuable sire. Main reliance will be placed on oats, bran, and light-mixed clover and timothy or timothy hay. A few ears of corn are of benefit to a stallion.
that is inclined to keep thin. Clean pasture grass during the season and carrots when grass is not available are valuable aids in promoting health. The heavily used stallion requires as much feed as a hard-worked horse.

A healthy, vigorous, muscular condition is greatly to be preferred to a soft, flabby, overdone condition. A stallion that loses weight rapidly during the breeding season is not likely to be a sure breeder. It is preferable, if possible, to start the season with the stallion in a lean condition and increase his weight a little during the season. The extreme fitting to which some stallions are subjected in being prepared for the show-ring has sometimes been a detriment to their future value as sires.

Regular Exercise Necessary

There are several methods that insure exercise sufficient in amount and regularity to produce vigorous health in the breeding stallion.

1. The stallion’s box may open into a bluegrass paddock of from 1 to 3 acres. With the footing supplied by a good sod, he may run in and out practically the year around.

2. The stallion may be worked at regular farm work if carefully handled by a skilled teamster. A half-day’s work each day will be
sufficient during the breeding season. This method, in a number of instances, has resulted in sure-breeding, long-lived stallions. Some stallions, those with heavy necks, are best worked in a heavy "Dutch" or breast collar (Fig. 2).

3. The stallion may be led in hand, driven, or ridden 2 to 5 miles a day, tho this system adds to the cost of keeping the stallion. A stallion that is traveled, or "roaded," from farm to farm during the breeding season gets enough exercise. Stallions that are trucked from farm to farm should be carefully exercised.

THE BROOD MARE

Select From Good-Producing Family

The most valuable brood mares are of desirable draft type and matronly in both appearance and disposition. They should be free from hereditary unsoundness. Brood mares should be selected from good-producing families whose dams have a reputation for the regular production of choice foals.

In general the upstanding, shallow-bodied nervous type of mare should be avoided, as very few of this sort have made good in the brood-mare ranks. From the standpoint of profit, one really good mare is worth several of the "chancy" kind.

Feed and Exercise for the Brood Mare

Brood mares are most likely to be regular producers when kept the year around in thrifty, mellow, and moderate condition. This means the use of good roughage and pasture plus some grain. The mare that is both suckling a foal and working requires generous feeding; good pasture alone may be sufficient for the idle mare. One-third or more of the roughage should be a legume hay. Sheaf oats and legume hay is a satisfactory combination. Grain feed should be comprised largely of oats, altho some corn is permissible. Bran is satisfactory, in fact necessary, in feeding the mare which is neither being run to pasture nor being fed some legume hay.

Not many records are available which show the attainment of success in maintaining a stud of idle draft brood mares. Such a system is unduly expensive, regardless of whether the mares are purebreds or grades. Furthermore, mares maintained in idleness are usually not very regular breeders. Work on the land during the farming season, with access to good-sized pastures when work is not available, seems
to be the most satisfactory way of keeping brood mares in condition. The hardest work may be given to the dry mares. The three-year-old can be used to reduce greatly the load for the brood mare after she has foaled. Most mares will work moderately and to their benefit right up to foaling. It is generally necessary to force mares to exercise as they become heavy in foal, as at this time they are prone to stand around. Most mares will not exercise sufficiently when confined to the limits of a small lot.

Care During Breeding Period

Draft mares, which are intended for brood mares, are usually bred for the first time during the spring that they are three-year-olds. Occasionally the well-grown two-year-old is bred to produce a foal at three. The breeding records of a number of such mares have been very good, tho owing to lack of development, mares of this age may have a little more difficulty at the first foaling than if breeding had been deferred. Plenty of feed and exercise are necessary for bred two-year-olds.

May and June are favorite months for the foaling of farm mares. Not only can the mares do much farm work before they foal, but nature is usually kind to foals dropped during these months. Too short a breeding season, however, frequently means fewer foals. Some mares, if desired, can be bred to foal in the fall. Fall foals should not come until the worst of the fly season is over; they require special attention as to feeding and shelter.

Preparations for Foaling

A clean bluegrass pasture makes a suitable place for foaling after grass comes and the weather is warm. Small paddocks that are foul with droppings are not suitable spots for foaling. An attendant should watch the mares and be on hand when they foal; this is more easily done when they foal in a loose box.

For draft mares, the foaling box is preferably 16 feet by 16 feet; and free from low mangers or other obstructions. Thoroly clean the foaling-box several days before it will be needed. Scrape, sweep, and remove any filth from floor, side-walls, and ceiling. Thoroly scrub the floor and walls with boiling-hot lye water, 1 can of lye to 20 gallons of water. For the feed-boxes and mangers 1 can to 40 gallons is strong enough. Follow this with a spraying of compound cresol in a 3-percent solution (4 ounces to 1 gallon of water). These sanitary precautions do much toward preventing infections.
FIG. 3.—PRIZE-Winning BELGIAN MARÉ HAZEL AND CHAMPION DAUGHTER

(Upper) This mare is shown in her 14-year-old form. She is an outstanding producer and winner. (Lower) A daughter of the dam above, this mare has a combination of size, fine quality, and brood mare character rarely found in one individual. (See records, page 37.)
Fig. 4.—Additional Produce of Belgian Mare Hazel.

(Upper) The beautifully turned body of this champion mare is a model of correctness and symmetry. (Lower) This two-year old colt has the short back and deep flank of his dam. The quality of his underpinning is excellent. (See records, page 37.)
Care of Mare at Foaling Time

The average period of gestation in the mare is 340 days, tho the time may vary from a few days to three weeks either way. Accurate records should be kept of breeding dates. Marked sinking of the croup muscles, fulness of the udder, which does not go down with exercise, wax on the teats, etc., are signs that foaling is only a few days away. At this time, if not before, the mare should be stabled in her foaling-box; during the day she should be turned out, weather permitting, and observed frequently. Gentle exercise should continue up until foaling. Exercise is likely to reduce considerably the amount of swelling and stiffness in the legs at foaling time. The feed at this time should be light, laxative in character, and moderate in amount and bulkiness.

Restlessness, lying-down and getting-up, sweating, and frequent urination are some of the signs that indicate approaching parturition. With normal presentation, front feet followed by the nose, the healthy, vigorous mare usually foals within about 15 minutes. If the presentation is other than normal or if labor is delayed, expert help should be secured at once. In any event, if possible, extra help should be within call. Unless assistance is given, and that promptly, when the foal comes hind feet first, foaling is likely to be delayed and the foal will be smothered. Breathing is aided in the newborn foal by removing the mucous film from the mouth and nostrils and permitting the foal to fall around. Artificial respiration is sometimes helpful to revive a foal that has all but ceased breathing.

The navel cord of the new-born foal usually breaks within a short distance of the belly. If it does not, it should be separated about two inches from the belly with clean dull shears or by scraping with a knife. Do not ligate unless the hemorrhage is profuse. Paint the navel cord with a 10 percent tincture of iodin as soon as possible, then dust with a good antiseptic drying powder. Daily dusting with an antiseptic powder and one or two additional treatments with the iodin will aid healing by helping to keep out infection. Dusting should be continued until the stump drops off and the scar heals.

After foaling, the mare and foal should be permitted to lie and rest. The afterbirth is usually discharged within two hours. Difficult foaling, bruising, or infection of the uterus, or retention of the afterbirth may cause septic metritis, or blood poisoning. Laminitis, or founder, a serious disease, may occur. If expulsion of the afterbirth is delayed six to twelve hours, it should be removed by a veterinarian. The afterbirth should be buried or preferably burned.

Serious trouble connected with foaling may usually be avoided by
anticipating conditions and preparing for them and by practicing strict sanitary measures throughout. Some caretakers take the mare’s temperature a day or two days after foaling. The normal temperature is about 101° F. Any discharge from the vulva, which is indicative of disease, should receive the veterinarian’s attention.

**CARE OF THE YOUNG FOAL**

It is important that the foal get on its feet and nurse within a few hours after foaling. Occasionally the awkward foal will require a little gentle guidance. In difficult cases it may be necessary to draw milk from the mare’s udder and use a bottle and nipple to induce the foal to take hold of the teats. With a high-headed, stubborn foal, back the mare onto a pile of straw in the corner of the loose box to give her a little more height.

The first milk is nature’s laxative for the foal, and when the mare has been properly fed on a light laxative diet the foal seldom is constipated. If, however, the foal’s bowels do not move after several attempts, give an ounce of castor oil mixed with a little milk or a lukewarm water enema containing a little glycerin or raw linseed oil. When too much milk has resulted in diarrhea, feed the mare a smaller ration of dry feed, or hand-milk a portion of the mare’s milk.

The practice of sanitation and hygiene starting with the stallion and brood mare at breeding time and continuing with the brood mare and young foal at foaling time usually prevents the most common type of joint-ill. In certain areas, particularly those known to be goiterous or semi-goiterous, the feeding of small weekly doses of potassium iodid to infal mares has seemed to reduce losses from joint-ill. Such feeding usually begins after the pasture season and continues until foaling time. Results attending the use of bacterins to prevent joint-ill have varied. Some breeders report favorable results.

**The Orphan Foal**

If possible, shift the orphan foal to another mare. If this is not possible, a good job of rearing may be done with the milk from a low-testing cow. Feed small amounts of milk at blood-heat frequently during the first few days. Keep the utensils clean.

1A. L. Harvey in "Using Horses on the Farm," Minn. Spec. Bul. 145 (1934) recommends: "Milk from a fresh cow, low in butterfat, should be used. To about a pint of milk add a tablespoonful of sugar and from three to five tablespoonfuls of lime water. Warm to body temperature and for the first few days feed about one-fourth of a pint every hour. As the foal grows, increase the amount. After three or four weeks the sugar can be stopped and at five or six weeks skim milk can be used entirely."
Feeding the Foal

All farm-raised foals should be accustomed to eating hay and grain before they are weaned at five or six months of age. Foals should be fed whatever is needed in addition to their dam's milk in order to keep them thrifty and to produce a good, strong frame. The foal of a heavy-milking mare that is idle and running on good pasture may require little additional feed; but when a mare is being worked hard, generous and careful feeding of both mare and foal is particularly necessary. A darkened loose box is a good place for mare and foal during the daytime when flies are bad.

Oats or oats and bran, sound legume hay or mixed clover and timothy, and a run to good pasture are, as already pointed out, excellent feeds for the development of bone and muscle.

Draft foals intended for sale or show must make a good appearance and have plenty of size for their ages. They are best fed moderately. Either overfeeding or underfeeding may cause serious losses. Underfeeding results in scrawny, poorly developed colts, and too fast forcing causes puffy joints and cock-ankles.

Daily out-door exercise in winter when the weather permits and the ground is not icy will go far toward keeping colts sound in their legs. The economical production of a good, sound, well-developed individual at maturity is the goal to be kept in mind.

Internal Parasites

Internal parasites frequently retard a colt's development and may even cause death. Medicinal treatment at weaning time and annually thereafter is good practice. Carbon disulfid has proved the most effective remedy for the removal of bots and ascarids, the larger intestinal roundworm. Oil of chenopodium and soybean oil are used in the treatment for palisade or blood worms. Potent vermifuges should be given only by an experienced veterinarian. Parasite control is greatly aided by clean pastures, clean stables, and a clean water supply.1

FEEDING THE YEARLING AND TWO- AND THREE-YEAR-OLDS

Thriftiness and a good growth of frame in a colt are dependent on the feed given during the first three years of life. Particularly is the first year, when 50 percent or more of the matured weight is made, a vital time.

With feeds at moderate prices, it is not advisable to grow the colt

too slowly.¹ Heavy grain feeding, on the other hand, is somewhat
dangerous and reduces greatly the amount of growth made on pasture.
Excessive condition is expensive and entails much greater risk of
depreciation from unsoundness.

Both practical experience and experimental results² indicate that
good, sound, rugged three-year-olds may be most satisfactorily pro-
duced where access is had to both permanent bluegrass pastures and
rotation pastures containing a considerable proportion of legumes.
The exercise obtained while grazing is an important factor in keep-
ing colts sound in their legs.

Combinations of roughages are most desirable. The use of legume
hays, such as alfalfa, clover, and soybean, permit the use of cheaper
roughages and at the same time produce excellent growth. Legume
hay and sheaf oats are a good combination. The legume hay makes
for growth and the straw balances the hay and the grain. For a
winter ration this combination is hard to beat. If sheaf oats are not
available, feed enough oats or oats and corn to make desirable growth.

TRAINING THE YOUNG COLT

The training of a colt should begin at an early age. Foals that are
handled and halter-broken when young take the presence of man as a
matter of course and are easily approached in the pasture and stall.
In fact horsemen who do not handle their colts until they are three
years old marvel at the gentleness of colts that have received thoro
early training.

The first lesson may consist of fitting a leather halter on the foal.
The next day tie the colt up in the same stall with its mother for about
half an hour. Watch it to see that it does not become tangled in the
halter rope or injure itself in any way. Repeat this lesson until the
colt stands quietly; then it is ready for leading.

If no helper is available, the colt may be started by leading with its
mother. Make the lessons short. No progress is made with a colt
that is tired and sulky nor with one that is tormented with flies. In

¹Trowbridge and Chittenden at the Missouri Station fed draft horses, until
put to work at nearly three years of age, on 4,328 pounds of grain, 5,724 pounds
of good legume roughage, and 573 days of bluegrass pasture. The skeletal
growth of these horses differed little from that of horses fed nearly twice as
much grain and roughage ad libitum, but they did not maintain so high a degree
of flesh as the horses receiving the greater amount of feed. They proved to be
just as efficient work horses (Missouri Bul. 316. 1932).

²Experiments at the Illinois Station in feeding purebred draft fillies are
reported in detail in Buls. 192, 235, 265, and 292.
fly time handle the colt early in the morning or in the evening. If a helper is at hand, have him follow the colt and teach it to leave its mother from the start. Give the first lesson in a small lot, so that there will be no chance of losing control of the colt. If time is avail-

![Three-Year-Old Filly Being “Ground-Broken”](image)

The colt shown above is being ground-broken with long rope lines. The near line is not run thru any rings on the harness. Keeping the inside line free gives better control when circling the colt.

able, two short lessons may be given daily. The command “whoa” should be given just before the colt is stopped, and the customary signal for starting should be given each time the colt is led forward.

The following method of teaching a colt to lead is recommended by Harry D. Linn,\(^1\) of Iowa: Tie a halter rope to the left front leg just below the knee. Tie a long rope (say 20 feet) to the middle of this halter rope in a way to prevent it from slipping. As the long rope is pulled, the colt’s foot is raised and pulled forward, and at the same time a pull is exerted on the halter. The average colt will follow in a short time. The head-and-foot tie is useful in tying a colt or green horse. This tie is made by running the halter rope thru the manger hole and tying it just below the knee or around the fetlock with a couple of half hitches.

When the colt is not in motion teach it to stand squarely on its legs with head up. Select a spot where its front feet will be a little higher

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\(^{1}\)Published in “Horse Breaking,” Iowa Horse and Mule Breeders’ Association and the Horse Association of America.
than its hind feet. Don't expect a colt to learn everything in one lesson. After it walks well, teach it to trot.

Opinions differ as to the correct way of "breaking" (training is a better word) a colt to work. Colts are often simply hitched with older horses and put to work. While it is true that draft colts may be broken in this way, better trained, more useful and dependable horses can be turned out if a little more time is devoted to the task. Fewer cases of sweeny, sore shoulders, and sore necks develop when care is taken in training.

If a well-trained, thoroughly reliable work horse is desired, there is no better way to start its training as a colt than to ground-break it with long lines. Fit the colt with a bridle with check rein, a back band with loops on each side thru which the lines may be run, and a crupper. The long lines may be either rope or leather, and should be long enough (about 20 feet) to permit the trainer to keep out of reach of the colt's heels and to drive the colt in circles. Give the first lessons in a small lot if possible. It is well to have an assistant with a lead rope. He can start the colt, after which he may drop back beside the driver. His only duties then are to help hold the colt if the driver is unable to do so and to steady the colt when it is stopped. In the small
lot, the colt learns to turn readily. Circle it both ways, and as it becomes bridle-wise drive in figure 8’s and other complicated figures. Teach it to stop promptly when the command “whoa” is given and to back as well as go forward.

When the colt has learned its lessons perfectly in the small lot, drive it outside. When it can be handled by one person alone, the assistant may be dispensed with. Colts handled in this way usually give little or no trouble when hitched the first time. They should be driven with a steady horse, preferably a good walker, so that they will learn to step out freely. A sled or stone boat is perhaps the safest thing to hitch to at first.

Do not drive a colt too long at any one time; the idea of “breaking his spirit” is wrong. In handling horses always be prepared for any emergency. Have harness and hitches extra strong and always play safe. Patience, care, and skill are required. If a colt once gets the upper hand, a good deal of work may be required to break it of bad habits.

Give colts some light work during the late winter to harden them for spring work. It will mean time saved during the rush season and more steady development into strong, useful work horses.
FIT AND CARE OF HARNESS

The fit and condition of the harness on a stable of horses is invariably a true measure of the horsemanship of the man in charge. Good harness, properly cared for and properly fitted, will last a remarkably long time. The most important harness parts, so far as fit is concerned, are the collars, hames, and bridles.

Collars. Each horse should have his own collar. There are different shapes of collars as well as different sizes. The most common shapes are the regular or straight-sided, the half-sweeney, and the full sweeney. After a horse has worn a collar for some time, it shapes itself to his shoulders to some extent and should be kept for that particular horse and not used on others. Probably the most common mistake made in fitting collars is to have them too short. When the collar is pushed back hard against the shoulders, there should be plenty of room to insert the hand easily between collar and windpipe; otherwise the horse will choke down on a hard pull, as has been demonstrated many times in pulling contests.

Collars will last longer if they are put on over the horse’s head instead of being unbuckled each time they are put on or taken off. To do this turn the collar upside down until the throat is reached, then turn it right side up.

If collars fit properly and are kept clean, very little trouble will be experienced with sore shoulders and necks. If caked dirt and hair is not removed from collars, it irritates the shoulder and a sore is almost sure to develop. If the skin is broken, this dirt is likely to cause infection.

Wash collars with warm water and a little soap instead of scraping them with a knife or other sharp object. Do not soak in water but wash rather quickly and dry with a cloth so they will not become water-soaked. The occasional use of neat’s-foot oil on the face of the collar helps to preserve the leather and makes the collar more comfortable to the shoulder.

With well-fitted collars, horses usually work more comfortably without pads. However, if a horse loses weight during hard work and a smaller collar is not available, it may be necessary to use a pad. One of the best pads is a thin one faced with oilcloth. The oilcloth is cool and easy to keep clean.

Hames.—The fit of the hames is as important as the fit of the collar. If the hames are not long enough, the collar is pulled out of shape. The hame should fit the rim of the collar closely at all points.
The trace should fasten at a point about one-third the way up on the shoulder. Be sure the traces are the same length; measure them if there is any doubt. Care is necessary to keep the mane from under the collar while the horse is working. Inspect for this condition several times during the day.

_Bridle._—The bridle should fit comfortably. The bit should be rather high in the mouth but not high enough to wrinkle the skin at the corners of the mouth. If the bit is too low, the horse will be apt to get it under his tongue; this is particularly true of colts that are being trained. The throat latch should fit neatly but not tightly enough to interfere with breathing. The brow band and crown piece should be adjusted so that the ears will not be pinched. If the harness chafes the horse at any point, this condition should be corrected immediately. A piece of clean sheep skin placed next to the skin may help until the tender part has healed.

_General care._—Harness should always be kept in good repair. Once a year it should be taken apart, washed thoroughly, and oiled with neat’s-foot or other good oil. A good harness oil is made by melting 2 pounds of beeswax and 5 pounds of beef tallow and adding this mixture to one gallon of pure neat’s-foot oil. A little lamp black may be added to the oil if desired. Good oil already blackened may be purchased.

**CARE OF FEET**

The old saying “no foot, no horse” is a true one, yet in many instances no attention whatever is paid to the care of horses’ feet. A work horse with overgrown, misshapen feet is clumsy and inefficient. Broken and split hoofs often cause soreness and lameness. Neglect of the feet of colts often results in permanent defects in the set of the feet and legs and in action.

In the care of a horse’s feet the most essential things are to keep them from drying out and to so trim them that they will retain their proper shape and length. Most farm horses are not shod. As their feet are in close contact with the ground, they are kept moist except in dry weather, when the hoof becomes dry, brittle, and easily broken. The frog loses its elasticity and is no longer effective as a shock absorber. If kept dry for a long time, the frog will shrink in size and the heel is apt to contract. Keeping the ground around the watering tanks wet will help prevent this condition. Shod horses whose feet tend to become too dry should have their feet packed with wet clay

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3Recipe from W. S. Corsa.
once or twice a week. This should be done in the evening if the horse is being worked.

Trimming may be done with ordinary blacksmith tools or, if the foot is level, it may be done more easily and just as efficiently with a mallet and chisel. A thin chisel cuts better than a thick one. A long handle makes the job safer with green horses. To trim with a chisel, stand the horse on a solid, level, wooden floor. Hold the chisel straight up and down, cutting around the hoof. Take off enough horn to round the foot nicely and make the edge quite blunt. This blunt edge prevents chipping and splitting. A flat foot will usually need more taken off than an upright one.

On young colts trimming is usually best done with a rasp. It is well to start giving the feet attention at an early age. Defects can thus be corrected while the animal is growing, and nature will assist in correcting the trouble. The colt is easier to hold while it is small and handling its feet tends to make it gentle and to educate it. The foot should be taken up and made as level as possible. Take the horn down about even with the sole. Then rasp off the sharp, outer edge to prevent chipping.

If the feet and legs seem badly out of line, do not try to correct this defect with one trimming; correct it gradually with each trimming. Before trimming the feet of a colt, observe him in action as well as when he is standing.

The feet of all horses should be inspected regularly and trimmed whenever necessary. They usually need trimming about once a month.

**COMFORT OF HORSE IMPORTANT**

In handling livestock of any kind, the little things that are overlooked by the novice often mean the difference between success and failure. The best horsemen are particular about minor details, and they have the comfort of their horses in mind at all times. Increased comfort means that the horses will be fresher and more fit, their weight will be more easily maintained, and more work will be cheer-
fully done by both horse and driver at lower cost than can be accomplished if the horses are in poor condition.

When not in the harness, the work horse should have a good, comfortable place to rest. In hot weather he should be protected from flies and kept as cool as possible. If kept in nights, he should have a good clean bed on which to lie. With the use of surplus straw in horse stalls and frequent cleaning of the stalls, horses will lie down more, rest better, and keep cleaner. Clean stables mean fewer flies. Filthy stables often cause thrush and other foot troubles. Frequent cleaning of stables also saves manure that otherwise would be wasted, and the straw is worked up into available plant food more quickly.

In hot weather horses will be more comfortable if turned out at night. Water should be available for them, and if there is no grass, hay may be fed in a dry lot.

Flies and other insect pests cause a lot of discomfort at times and reduce the efficiency of horses. Darkening the stables by hanging gunny sacks over the windows will make the flies less troublesome and keep the barn cooler. These sacks should be raised at night to let as much cool air into the barn as possible. Sacks may also be hung in the stalls so that the horses can rub the flies off their backs. Fly nets of ample size are a great help to work horses (Fig. 10).

Fly sprays are helpful at times. A mixture of fish oil 100 parts,
oil of tar 50 parts, and crude carbolic acid 1 part makes a good fly repellent to use on idle horses and colts. It is best applied lightly with a paint brush. Treating horses for bots during the winter greatly reduces the number of bot flies in summer. On many farms regular treatment for the removal of intestinal parasites is advisable.

Shade is very important for horses and colts on pasture. The best horse pastures contain many shade trees, which may, however, require protection from the horses' teeth. If there are no trees, cheap sheds may be built for shade. Sacks hung from these sheds will brush flies off the horses as they walk or stand under them.

Thoro grooming adds greatly to the comfort and health of a work horse. Grooming removes dirt and dandruff and keeps the pores of the skin from clogging, it stimulates the action of the skin glands and oils the hair, increases the blood supply to the skin, and acts as a tonic for the whole body. A good, stiff, dandy brush and a curry comb of the "humane" type are best for draft horses. The curry comb is used to loosen the dirt, which is then removed with the brush. Do not use the curry comb on the head and use it only lightly on the legs. One of the most important parts to keep clean is the shoulders. Be careful of any scabs or tender places in this locality. Washing with cold, salt water the shoulders of horses that are starting to work cleans them, helps to take out any fever, and thru the action of the salt tends to toughen the skin.
In grooming a horse give the roots of the mane and tail a thorough brushing and lay the mane on the off-side of the neck. Use a card or mane comb for this purpose. The use of a card or mane comb on the tail may, however, be overdone. Do not shorten the tail too much or it will be of little use in switching flies. On the other hand, if the mane is heavy, thinning will make the horse cooler, and there will be less trouble caused by locks of hair working under the collar.

**TYPE OF HORSE NOW IN DEMAND**

Time has wrought many changes in the demand for work horses at the central horse markets. At the present time the shapely, active, quality type of chunk and lighter weight drafter is finding more buyers and at higher prices than are the heavier types of commercial draft horses which sold at the market top only a few years ago. As a matter of fact, price has been too heavily stressed during the depression and the inferior horse has sometimes sold higher in proportion to his real worth than the good individual. This situation is not likely to exist during more prosperous times.
The city demand for the good, big, heavy draft horse is no longer of importance, and the same is true for the rougher, plainer, heavy drafters that formerly went to logging interests in large numbers. The present demand is largely for the farm trade and the 16-hand, 1600-pound horse seems to have the call on the market. Considerable numbers of wagon horses are still used for retail milk delivery.

**Type and the Purebred Breeder**

The farmers do not favor the largest size of horse for farm work, size and ruggedness are both valuable qualities and qualities not easily maintained. Hence the breeder of purebred drafters, the source of desirable sires, is under the necessity of stressing size and substance to a greater degree than is the producer of grades, provided these qualities are accompanied by all-around merit. The purebred demand has been for the better kinds. These have commanded a considerable premium over the plainer ones, which have sold for little, if any, more than grades of similar quality.

The purebred breeder must produce individuals of merit if he is to have satisfactory sales.

**Points to Emphasize in Judging**

In breeding work horses, greatest emphasis should be put on utility points. A good disposition should always be given a high rating. The easily trained, cheerful worker with good manners in harness, in the stable, and in the pasture-field can be kept more economically and more satisfactorily than the individual with opposite traits. Sound wind is a highly prized quality in a farm horse that is to be worked during the hot summer months in the corn belt. Good eyes are likewise highly appreciated by all who use horses.

Feet and legs must have quality and mechanical correctness if they are to stand the wear and tear of a long, active, and profitable life. Horseshoers are scarce; toughness of horn, size, shape, and set of feet are more important now than ever before. The horse's value lies chiefly in his ability as an animal motor, hence the necessity for his having ground-covering ability, particularly at the walk. A slow, clumsy, stumbling walker is practically useless on the farm or any place else.

“Two good ends and a middle” will just about complete the picture. Driving power and propulsion rest largely in the hind quarters; it is important that the muscling be heavy in these regions. Long, sloping shoulders go with good action; a smooth well-developed collar bed
provides a good bearing surface and thus tends to prevent sore shoulders. Good eaters and good doers are usually synonymous terms. Plenty of “bread basket” is required in the farm horse; the light-waisted individuals usually do not eat enough to keep them going during seasons of hard work.

**AMOUNTS OF FEED USED PER WORK HORSE PER YEAR**

On record-keeping farms in Champaign and Piatt counties, Illinois, during 1931, 1932, and 1933, the following amounts of feed were fed per horse in a year’s time on the one-third of the farms having the lowest net cost per hour of horse labor.¹

<table>
<thead>
<tr>
<th>Feed used</th>
<th>1931</th>
<th>1932</th>
<th>1933</th>
</tr>
</thead>
<tbody>
<tr>
<td>Corn</td>
<td>24.7 bu.</td>
<td>35.4 bu.</td>
<td>38.7 bu.</td>
</tr>
<tr>
<td>Oats</td>
<td>22.6 bu.</td>
<td>31.7 bu.</td>
<td>30.9 bu.</td>
</tr>
<tr>
<td>Other concentrates</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Total grain</td>
<td>2110 lbs.</td>
<td>2996 lbs.</td>
<td>3155 lbs.</td>
</tr>
<tr>
<td>Hay</td>
<td>0.66 T.</td>
<td>1.05 T.</td>
<td>0.74 T.</td>
</tr>
<tr>
<td>Other roughage</td>
<td>1.77 T.</td>
<td>1.52 T.</td>
<td>1.10 T.</td>
</tr>
<tr>
<td>Total roughage</td>
<td>2.43 T.</td>
<td>2.57 T.</td>
<td>1.84 T.</td>
</tr>
<tr>
<td>Pasture days</td>
<td>199</td>
<td>118</td>
<td>154</td>
</tr>
<tr>
<td>Average hours of work per horse</td>
<td>817</td>
<td>987</td>
<td>861</td>
</tr>
</tbody>
</table>

It is an easy matter to apply current prices to the amounts of feed shown. The resulting figures will indicate the feed cost at which horse power can be produced under good management.

¹Compiled by division of Farm Management, University of Illinois.
RECORDS OF HORSES PICTURED IN CIRCULAR

Fig. 1 (page 14)
(Upper) CARNOT, 66666 (66666), Percheron stallion. A great show horse in France and America and sire and grandsire of many winners. Imported by J. Crouch and Son. Owned by W. S. Corsa, Gregory Farm.

Fig. 1, cont. (page 15)
(Upper) MAJOR DE MALMAISON, 14826, Belgian stallion. Many times grand champion. Imported by Holbert's. Owned by Roth Bros.
(Lower) PRINCE CEDRIC III, 23341, Champion Clydesdale stallion, International Livestock Exposition, 1933. Owned by Stringham Bros.

Fig. 3 (page 20)
(Upper) HAZEL, 8582, Belgian mare. An outstanding producer and winner of many prizes including first as a 4-year-old at the National Belgian Show in 1924. She is the dam of Roachdale Hazel, 13582 (below), of Jean, 10031 and Victor, 16714 (Fig. 4), and also of the first-prize winners Colonel de Hemel, 13582 and Ariste, 14480. Owned by Harry Stamp, Walnut Grove Stock Farm.
(Lower) ROACHDALE HAZEL, 13582, great show mare. Winner of many championships including the National Belgian Show, 1933, and International Livestock Exposition, 1933. Bred by Harry Stamp. Owned by H. C. Horneman, Kenfleur Farms.

Fig. 4 (page 21)
(Lower) VICTOR, 16714, Winner of Junior Championship as 2-year-old at International Livestock Exposition in 1931 and many other prizes. Bred by Harry Stamp.
The decrease in the numbers of horses and mules in the United States between 1918 and 1931 is estimated as equivalent to an increase of fully 10 percent in the effective crop acreage of the nation. Furthermore this surplus of feed caused by the decline in the use of horses is accumulative from year to year.

The number of horses on Illinois farms has been practically cut in two since 1918. Less than one-third the number of horses necessary to keep numbers stationary are now being raised, according to estimates of the division of Farm Management of this Station.

Since horse numbers in the United States must continue to decline for several years, and since horses are selling nearer their pre-war value than most other classes of livestock, it would seem desirable for Illinois farmers to breed all available mares of good type.

The number of mares young enough to raise colts is small and in many localities stallions are not available. Farmers who will need replacements in the next ten years would do well to raise their own colts. A farmer who has good work horses to sell is likely to find ready buyers at good prices.