



*How to Breed
Your Mare*

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Why Do I Want To Breed A Mare?

Breeding isn't for everyone, but it can be very rewarding. Once you have decided you want to breed one or more Morgans, it's time to assess the mare(s) you will be breeding. Perhaps the mare is a dependable trail-riding horse, a stellar show horse, an accomplished Dressage performer, or an outstanding animal in one of many other disciplines. Whatever her contributions, you consider her as a good breeding candidate. Conversely, you might own a mare that has turned out to be a disappointment for her intended purpose and you don't know what else to do with her. Even if she has turned out to be a disappointment for what you originally expected from her, she still might be a worthy breeding animal. Whether you are thinking of breeding just one mare or establishing a small breeding operation, keep in mind that a below-average mare is not likely to produce an above-average foal. Consider how much emphasis you will put on each mare's bloodlines, conformation, temperament, size, type, and athletic ability.

After you decide the mare you have chosen has adequate quality for breeding, there are many more factors to consider, including her breeding soundness, health status, and age. You also need to assess the adequacy of your facilities, finances, and other resources to raise a foal. Many questions should be asked before undertaking this venture. *What is the intended purpose of the breeding? Is the offspring being produced for sale or for a horse to keep? How do you evaluate and select a stallion? If the mare is boarded away from home, will she be able to remain at that facility? If the mare is kept at home, will a stall and/or a paddock or pasture have to be modified to be safe for the foal? How old is the mare? Has the mare ever been bred before? If so, what was the outcome of these breedings? One last item to determine is your mare's registration status. Does she have a DNA record?* In order to register the foal from the mare, she has to have a DNA record on file with the American Morgan Horse Association (AMHA) registry.

Heritability Factors

There is little doubt you probably will scrutinize your mare's pedigree as well as that of any stallions being considered. Examination of the pedigree can help identify traits from ancestors you hope will be present in the foal produced as well as those you would like to avoid. Some traits are genetic; however, environment also contributes to an animal's traits. Although there can be differences in the respective contributions of genetics and environment from horse to horse, research provides some estimate of the degree of heritability for certain traits. A heritability factor of 20 percent or less is considered low, and 40 percent or more is a high degree of influence. Body weight has a heritability estimate of 25-30 percent, and height at the withers has been determined to be 26 percent. In a large study of Hanoverians, the heritability of the head structure was 40 percent, whereas correctness of gait was only 14 percent. These figures are from a study of another breed and there are differences in the strength of genetic traits among

different breeds; however, the basic premise regarding the relative heritability is probably fairly consistent. Doubling up on proven desirable bloodlines can increase (*but can never guarantee*) the potential for selected traits to be passed on to the foal, while minimizing less desirable traits.

The influence of ancestors is diluted as you go back behind the grandparents and the desired combination of genes may not necessarily pass from parent to offspring. It is likely that the greatest contribution will come from the mare herself because she will contribute both genetically and environmentally. Above all, there will be an uncontrollable and unpredictable element of luck in the passage of genes to the offspring because a horse will pass individual genes, but it is rare that they pass on the exact combination of genes that make the sire or dam beautiful, talented, intelligent, tall, correct, and/or a particular color. However, careful selection can shift the odds to favor the potential for certain pre-defined characteristics.

Conformation

Conformation is the way parts of the body fit together and harmonize with each other—form to function. Conformation is primarily the result of many heritable traits. Horses with good conformation tend to be sounder than horses with poor conformation. This is an important consideration for a broodmare because conformational qualities are passed on. There are different standards for conformation (*not to be confused with type*) among different breeds; however, there are basics that do not vary greatly, including the following characteristics: the body should be balanced and symmetrical and evenly divisible into thirds from the point of the shoulder to the point of the withers, from the point of the withers to the point of the hip, and from the point of the hip to the point of the buttocks; the height at the withers should be the same as that at the croup; the front legs (*from the fetlock*) should be about the same length as the depth of the body; the neck should have enough length to provide good flexion at the poll; the shoulder should be long and sloped forward and downward from the withers to the point of the shoulder; the pastern and hoof wall should slope at an angle similar to that of the shoulder; and the topline should be shorter than the underline.

Temperament

A good disposition and mothering ability are important considerations for the evaluation of a mare as a broodmare. Temperament is believed to be a highly heritable trait, but it is also quite influenced by environmental factors, including learned behaviors from the dam, training, and other experiences. Since the mare will influence the foal by both heredity and environment, the mare's temperament is an important factor if you hope to have a quiet, tractable offspring.

Size

Size is a relatively heritable trait, but if it is variable among the close-up relatives of the mare and stallion, the size of the offspring will be more difficult to predict. The rate of growth for Morgans is somewhat slower than that for many other breeds, so allow adequate time for the horse to mature.

Type

Type refers to the set of distinguishing characteristics that defines a horse as a member of a particular breed. The characteristics are defined by the breed standard. An excerpt from the Morgan breed standard is provided in Appendix 1.

Color

Color is strictly a heritable trait. There are two base colors for all horses: black and chestnut. Starting with these two colors, dilution genes, mane and tail modifiers, and other variants can affect the probability of the color of the foal. Color prediction is a complex subject, but there are several websites and reference books with information on color in horses. Some of these are cited in the list of references at the end of this booklet.

Health and Soundness of the Mare

The general health of the mare should be evaluated carefully before breeding. Conditions such as heaves, laminitis, umbilical hernias, or endocrine imbalances are critical factors in the suitability of a mare for breeding. These conditions do not necessarily indicate the mare is a poor candidate for breeding, but they are issues that should be addressed and possibly may require treatment before the mare can be bred. Less critical, but still worthy of noting and treating are lamenesses, which could cause the mare discomfort while carrying a foal.

The mare should be in good weight, but not obese. The presence of a long winter coat in the spring is probably an indication that the mare has not yet resumed cycling. In rare instances, the retention of a long coat into spring could indicate the presence of a hormonal disorder.

Breeding Soundness

A pre-breeding examination should be performed to identify any reproductive problems that could interfere with the mare's ability to conceive or produce a live, healthy foal. If the mare has a previous breeding history, a detailed record, including estrous patterns, breeding dates, foaling dates, and any infections or breeding or foaling difficulties, should be available.

The mare's external reproductive genitalia should be examined to determine

whether pelvic and vulval conformations are adequate for breeding. If the labia and anus sink inward, there is danger of infection when feces are able to enter the reproductive tract. The external area also should be evaluated for scarring.

A veterinarian should perform a rectal examination as part of the mare's breeding soundness evaluation. The examiner will first locate the ovaries to determine their size, texture, and follicular activity. This examination will provide the status of the mare's cycling activity as well as any apparent irregularities of the cervix, ovaries, and uterus. Only a trained professional can detect and interpret these irregularities and provide a forecast of its impact on the breeding soundness of the mare. Many stallion owners will require a negative culture, which must be performed by a veterinarian when the mare is in heat because this is the only time in her cycle that will permit access beyond the cervix. Results of this culture will reveal whether any organisms are present in the uterus that require antibiotic treatment. In some cases, a uterine biopsy might be indicated, particularly for barren mares, those with persistent uterine infections, mares with a history of previous abortions, and mares with known cycling irregularities. This test, when performed in conjunction with a thorough physical reproductive examination, will provide an evaluation of the mare's fertility.

Realistic Expectations for Success

Advances in breeding technology have improved breeding efficiency, increased the breeding capacities of stallions, and enhanced the breeding success of stallions and mares with impaired fertility. You might ask, "What are the odds my mare will be successfully bred?" Obviously, the answer depends on many different individual and management factors, but reproductive experts say that average breeders have a high probability of success with a healthy, young mare. It is estimated that approximately 80-90 percent of horses are reproductively normal. Trying to breed an aged maiden mare or one with other confounding factors will decrease the probability for success. The national average for a conception on the first cycle using fresh cooled semen is 60 percent and that using frozen semen is 50 percent. The overall average conception rate (*disregarding the number of cycles required*) for both fresh cooled and frozen semen is similar (70 percent), but breeding by frozen semen generally requires more cycles (2.5) per conception. "Normal" horses sometimes fail to reproduce for reasons that cannot be detected or explained.

One of the often-overlooked factors in breeding success is the selection of a competent veterinarian who is knowledgeable in equine reproduction. Veterinarians who provide excellent routine health care are not always well versed in reproductive work and some of them will readily admit that it intimidates them, does not interest them, or involves too much time or other investment for them to pursue. Some of these veterinarians will recommend another local practitioner or specialist who will have extensive experience in this field. Don't be afraid to ask your veterinarian about his or her level of experience

and desire to be involved in your breeding project before you engage in the search for a stallion.

Financial Considerations

Certainly not a point to overlook is the finances involved in breeding a mare. It is wise to determine the limits of your budget and then stick by them. Once you have selected the stallion, examine the breeding contract carefully, and be aware of all related costs that will be involved above the stated stud fee.

If you are breeding by shipped semen, there probably will be courier charges in addition to collection and semen evaluation costs. Most stallion owners or collection facilities also require a container deposit, which is refundable when the container is returned in a timely manner and in good condition. There will be service charges from the attending veterinarian or other technician who examines the mare before breeding and performs the insemination. A number of ultrasound and physical examinations may be performed before breeding to determine the appropriate time to breed and more examinations will be performed after breeding to determine pregnancy status. Most reproductive veterinarians or facilities will provide an estimate of individual costs for ultrasounds, insemination, etc. if you ask them. For on-farm breeding, the stallion owner will have a daily boarding fee and other veterinary fees may be charged.

Ideally, the mare will be successfully bred in one cycle, but this does not always happen, and many of the charges encountered for the first breeding cycle will be repeated. Although not a common occurrence, if the mare sustains a uterine infection, treatments will be required to eliminate the invading bacteria.

As disappointing as it is to breed a mare that seems to be a good candidate for breeding and find she has not conceived after two or more breedings, it is better to consider an alternate mare, an alternate stallion, or other alternatives than to go far beyond your established limits, particularly if you cannot readily identify a factor that has caused the repeated failures.

Even with a favorable conclusion to the breeding effort, there will be more expenses to face. The mare should have periodic vaccinations as recommended by your veterinarian during her pregnancy, and she should have a safe and roomy place to foal, which might require modifications to the existing stall arrangement.

Choosing a Stallion

Returning to the earlier discussion of heritability, evaluation of stallions should be similar to criteria used to evaluate the mare. Conformation, type, soundness, a pedigree of proven bloodlines, good temperament, and a history of producing exceptional progeny are important factors to research in prospective stallions. The performance record of the stallion is another feature to investigate, but may be less important than the others under your specific circumstances. What do

you hope to produce? Do you favor a particular color, show division, or sport? Perhaps you expect an offspring that will be phenotypically similar to your mare or to the stallion? The odds of achieving your goal will be increased by careful selection and a critical eye; however, even the most thorough research does not always produce the desired traits.

The stallion you select should have strong points to compensate for qualities where your mare is weak. As a rule, the conformation of the offspring will be somewhere between the mare and the stallion. Even if your mare is very correct, the conformation and quality of the stallion selected should at least be as good as the mare, if not superior. Lameness, blindness, and other physical problems should be acknowledged, and an effort should be made to determine whether these are hereditary or environmental in nature.

Try to see as many of each prospective stallion's current offspring as possible to evaluate them for quality and uniformity. In addition, if there are full siblings of the stallion, an inspection of these relatives may help to provide a sense of the consistency of traits within the stallion's family. A progeny report for any horse can be requested from the AMHA Registry Department, or the most current edition of the AMHA registry on CD will provide valuable information, including age, color, breeding method, and sex for each horse's progeny.

One important detail is to verify the DNA status of the stallion. If the horse has not had parentage verification by DNA, the resulting foal cannot be registered with AMHA. The stud fee, particulars of the breeding contract, and other costs imposed by the stallion owner should be carefully evaluated. *Is there a live foal guarantee? If so, what are the options if your mare does not become pregnant?* It is unlikely that the stud fee will be refunded if the mare fails to conceive, and board, semen collection, and shipping expenses are not generally covered by a live foal guarantee. Most guarantees will only provide for return service the following year and/or allow for the substitution of another mare.

It also will be helpful to know whether the stallion is actively competing during the season you plan to breed. Many breeding failures occur because the stallion is unavailable at the time your mare is due to be bred. Another aspect of this topic is the reliability of the stallion owner or facility. One measure of their reliability is the ability to reach them by phone. A person who chronically fails to return calls or is unwilling to provide helpful information about the stallion or his progeny might also prove to be unreliable when it comes to shipping semen.

If the mare is to be bred using shipped semen, it is important to have an idea of how well the stallion's semen survives during shipping, cooling, and thawing. Stallions with a high fertility rate on the farm do not always produce semen that ships well. The owner or stallion facility should provide this information on request.

The Breeding Contract

The basic purpose of the breeding contract is to allocate the risks and responsibilities. Read the contract carefully. Ask the stallion owner for

clarification of any terms or requirements that are not understandable or seem unacceptable. Frequently, terms and conditions can be easily and readily explained or concerns resolved by discussing them with the stallion owner. A friend or acquaintance also may be able to help interpret some of the language, but an attorney familiar with equine law is the most reliable source for clarification of any ambiguous terms in a contract. The contract should minimally contain the following basic information:

- **Name and contact information for mare owner**
- **Name and contact information for stallion owner**
- **Mare identity and health status requirements**
- **Stallion identity and health status**
- **Quality and quantity of semen to be provided**
- **Fees and schedule for their payment**
- **Guarantees provided**
- **Responsibilities of the mare owner**
- **Responsibilities of the stallion owner**
- **Possible risks to the mare owner**

Examples of acceptable stallion contracts are provided in Appendices 2 (*on farm breeding*) and 3 (*shipped semen*). In these examples, all provisions listed above are well defined.

In a contract that provides a live foal guarantee, the term “live foal” should be defined to your satisfaction. The term usually refers to a foal that is able to stand and nurse without assistance. One variation of the live foal guarantee used infrequently in a contract is “*guaranteed in foal*.” Under conditions of such a contract, once the mare is pronounced in foal, the stallion owner’s obligation is complete. If the mare resorbs or aborts the fetus during pregnancy, there is no recourse or refund.

Read the contract carefully for the terms stated for pregnancy diagnosis. Many will require more than one examination. Typically, the first examination will be 12 to 17 days after insemination and a veterinarian’s certificate may be required. If the specified schedule for examinations is not met or if no veterinarian’s certificate is provided, the mare owner may be responsible for the stud fee regardless of whether a live foal is produced.

Keep in mind that the contract really is designed to protect the stallion owner, not the mare owner; however, certain responsibilities of the stallion owner will be (*should be*) defined. One of these responsibilities is the guarantee that the stallion owner will provide all necessary signatures and documentation to AMHA to permit the foal to be registered. Examples of stipulations that might not be in your best interest include the following:

- **A statement that indicates the stallion owner will not be responsible for lost, delayed, or damaged semen, and will not guarantee its arrival in good condition.**
- **A statement indicating the stallion owner does not guarantee the health or fertility of the stallion.**

- The requirement that a mare must come to the stallion owner's property after a specified number of cycles attempted by semen transport.
- The absence of a return breeding provision after the first breeding season.

Time to Breed

Breeding Season

Mares are seasonal breeders and the natural breeding season is determined primarily by the number of daylight hours, temperature, rainfall, latitude, and nutrition. In the northern hemisphere, the natural breeding season generally starts in April and ends in October. Some mares will begin to develop ovarian follicles in March, but these early cycles many not be accompanied by ovulation. As the daylight hours and temperatures increase in April, the majority of mares begin to ovulate regularly.

The cycle can be manipulated by up to two months using an artificial light program. Approximately 60 days of artificial light are required to induce follicular activity. Therefore, if you want to move the breeding season to start in February, the mare should be exposed to 16 hours of light beginning in November. This length of photoperiod has been studied extensively and found to be very reliable. In a stall measuring approximately 12 feet x 12 feet, 200 watts from incandescent bulbs or 40 watts from fluorescent fixtures placed in the stall will provide the right amount of light needed. Mercury vapor, sodium, or quartz lights probably are most efficient if a pen or small paddock is to be included in the light exposure. A lighting consultant may be contacted for advice on the size and placement of lamps in these areas.

Estrous Cycle

A normal mare comes into and out of heat (*estrus*) at regular intervals. The duration of a normal estrous cycle is 21-23 days. The cycle consists of approximately 14 days of diestrus (*also known as the luteal phase*), which is the period of sexual inactivity, and seven days of estrus (*known as the follicular phase*), which is the period of sexual receptivity. Ovulation generally occurs about 24 hours before the end of estrus.

Heat Detection and Teasing

Mares exhibit various responses to teasing. Equally variable is their ovulatory pattern. Some will ovulate on Day 4, others on Day 7. Generally, the best way to detect estrous behavior in a mare is to expose her to a stallion, if one is available. Most mares in heat will exhibit one or more characteristic signs, including raising the tail, winking, squatting, and urinating. The mare will most likely stand and exhibit pleasant responses to the stallion. A mare that has gone out of

heat will not stand still and will aggressively reject the stallion by switching her tail and will kick and strike. Some mares will simply act passively or with indifference to a stallion; this behavior often occurs within a day of coming back into heat or just going out. Some mares (*about 15 percent*) will not exhibit characteristic signs that are indicators of estrus behavior. Veterinary management is usually required for these mares.

Teasing mares requires special attention to the safety of the horses and handlers and should be guided by experienced personnel. Overall, with a sensitivity of 85 percent, teasing is a good screening test, but when a higher degree of accuracy is required or when no teasing stallion is available, rectal palpation and ultrasonography by an experienced veterinarian are preferred methods for detection of estrus.

Rectal Palpation

Prediction of ovulation by rectal palpation involves examination of the ovaries, cervix, and uterus. The ability to predict ovulation primarily focuses on the size and firmness of the ovarian follicles. Follicles are fluid-filled bubbles that grow within the ovaries. Several follicles, usually 20 to 30 mm in size may be present as estrus approaches. Approximately six days before ovulation, one (*or sometimes two*) follicle will become dominant and will outgrow the others, reaching 35 to 50 mm in size, and will become firm and tense. Within approximately 24 hours before ovulation, the follicle will soften.

Ultrasonography

Basically, ultrasound works by sending high-frequency sound waves that are reflected back with signals of differing frequencies according to the density of structures they encounter. To complete this examination, a probe is held in the examiner's hand and inserted in the mare's rectum. Moving the probe from side to side will enable the examiner to visualize the cervix, body and horns of the uterus, oviducts, and ovaries. These scans are even more reliable than rectal palpation for detecting follicular development, especially for detection of double ovulations, which could lead to the production of twins.

How to Breed

Pasture Breeding

Some stallions are available only by live cover, others only by artificial insemination. One method of live cover is pasture breeding. This method is advantageous when personnel and facilities are limited, but there is adequate pasture for turnout. Under the right conditions, pasture breeding is cost effective and produces pregnancy rates similar to those achieved by hand breeding. Some of the down sides of pasture breeding are that breedings usually are unwitnessed, making pregnancy diagnosis challenging, and there is some danger of injury to a mare or stallion.

Hand Breeding

Live cover breedings to outside mares most often are done by hand breeding. Hygiene is an important consideration for hand breeding and most breeders using this method will wrap the mare's tail and thoroughly wash the mare's vulva and perineal area before bringing the mare to the breeding shed. The stallion's penis also is washed with lukewarm water and gentle soap. Equally important is proper restraint of both the stallion and the mare, which precludes injury. Hand breeding optimizes the stallion's breeding schedule; libido or the potency of the semen sometimes decline late in the season for stallions that breed excessively at pasture.

Artificial Insemination

Artificial insemination (AI) can be accomplished with fresh (within 12 hours of collection), cooled (*maintained at 39° to 46°F and capable of retaining viability for several days*), and frozen semen (*maintained at -321°F and capable of retaining viability for months or years*).

Advantages of AI include increased efficiency of the stallion's reproductive capacity because several breedings may be performed with a single ejaculation. AI also greatly reduces the risks of venereal disease and breeding injuries. Perhaps the greatest advantage of AI is that it provides mare owners with the opportunity to breed to superior stallions many miles away. Several universities, agricultural extension agents, and equine veterinary practices offer short courses in AI procedures. Even if an equine veterinarian will be performing the insemination, it is good for you to be familiar with the procedures.

Disadvantages include the necessity for expensive equipment and well-trained personnel to collect, prepare, and store the semen. Close monitoring of the mare's cycles and cooperation between the individuals collecting the semen and inseminating the mare are vital. Finally, semen from stallions does not always survive the cooling process and many more fail to survive freezing.

Pregnancy rates using fresh semen are in the range of 80-90 percent; whereas approximately 60-70 percent success is noted with semen stored for 24 hours, and the success rate drops to 40-50 percent after 48 hours.

Ordering Semen

Estimating the correct time of ovulation is critical for positive results with shipped semen. The optimal time of insemination is 12-24 hours before the mare ovulates. To have semen arrive before the estimated time of ovulation, the stallion owner or facility should be contacted one to two days before the mare is expected to ovulate. Ideally, the semen shipment will arrive hours before ovulation, but if it arrives too early and the mare has a nearly mature (35- to 40-mm) follicle, the attending veterinarian can induce ovulation by injecting the mare with the hormone human chorionic gonadotropin.

Collecting and Shipping Semen

Semen is collected by the veterinarian or other stallion manager into an artificial vagina with the use of a phantom or jump mare. The semen is taken directly to a laboratory for analysis and preparation for shipment. In the laboratory, the semen is mixed with an extender. Extenders can be commercially obtained or homemade. Basically, they contain lipoproteins such as those found in milk and glucose for energy. One or more antibiotics are added to prevent the growth of bacteria.

The Equitainer™ (*Hamilton Research*) is a state-of-the-art container used for shipping semen. This commercial container is available in a model that keeps semen cooled for up to 70 hours and another model that maintains temperature for up to 48 hours. Lightweight, disposable Styrofoam models also are available. The disposable containers have variable efficacy for the retention of semen quality. Information for most commercial containers can be obtained from the company or may be available on a company or other website.

If the semen is shipped to your property, do not open the container until the veterinarian arrives and all preparations are completed for the mare insemination. It would be advantageous to ask the stallion owner whether a record of semen analysis will be provided with the semen shipment. This record usually will provide information about the name, registration, and semen transport number of the stallion, extender used, ratio of extender to semen, sperm count (per ml and total), motility, and date/time collected. A fertile stallion will routinely produce 10-15 billion sperm per ejaculate, and one insemination dose will generally contain 300-500 million progressively motile sperm. Counts below 100 million per dose may reduce pregnancy rates. Typically, semen that has 65 percent motility at the time of collection will have only 45-50 percent after 24 hours. After 48 hours, motility will drop into the range of approximately 30 percent.

Detecting Pregnancy

There are several methods for determining pregnancy and the primary purpose for a pregnancy examination is the obvious: to find out whether the mare is pregnant. If a repeat breeding is necessary because the mare failed to conceive, it will be most efficient to begin preparations for the next cycle as soon as possible. In addition to this obvious motivation, it may be a requirement on the stallion's breeding contract.

Teasing

Teasing a mare 17-21 days after breeding can be used as a screening test for pregnancy. Failure to show signs of heat could be an indication that the mare is pregnant. However, as noted earlier, teasing is a reliable indicator of estrus in only about 80 percent of cases. Not only do some mares fail to demonstrate signs of estrus during teasing, occasional mares continue to exhibit estrus-like signs even when they are pregnant.

Rectal Palpation

Rectal palpation is a simple, effective, and inexpensive method for detecting pregnancy. The drawback to rectal palpation is that it requires an experienced person to detect the presence of a pregnancy before 30 days. What the examiner will generally evaluate is the tone of the uterine horns and the condition of the cervix. Uterine tone and thickness increase during pregnancy, and the veterinarian may be able to detect a small bulge (3 to 4 cm) at the base of one horn at 20 or 21 days. Throughout pregnancy, the cervix will be firm and tubular, maintaining a tight seal to protect the fetus and its environment.

Laboratory Tests

A number of laboratory tests are available that diagnose pregnancy based on detection of a particular hormone produced by the placenta. These tests generally are accurate between 37 to 100 days of gestation, with best results around 50 days. Detection of progesterone, a hormone produced by the corpus luteum and is responsible for maintaining pregnancy, is another test that can be conducted around 16 days after ovulation, but it should be followed up with at least one more test to verify that the progesterone levels remain high. Certain reproductive problems can interfere with the accuracy of this test, however.

Ultrasound

Ultrasonography will accurately detect pregnancy approximately 95 percent of the time at 15 days after ovulation. Some of the more powerful instruments will detect the vesicle as early as ten days. Any mare suspected to have ovulated more than one follicle and those with a history of twinning should be checked by ultrasound before 16 days because chances of successfully eliminating one of the embryos are much better up to that time. Most veterinarians will scan between 14 and 18 days after ovulation, which will identify the status of the majority of mares. Some veterinarians will recommend one or two more ultrasound examinations up to 30 or 45 days to ensure the fetus is undergoing an acceptable rate of growth.

Mare Nutrition and Care

As a rule, there no need to modify the diet or quantity of the ration during the first eight months of pregnancy. Good, quality roughage is the major source of nutrients for most horses, and mares should be provided with hay or grass in quantities equivalent to approximately 1 percent of their body weight daily. During late gestation (*the last three months*), total daily feed provided to a pregnant mare can be increased to approximately 1.5-2 percent of her body weight.

Forages

Some forages that should be avoided include certain types of hybrid

sorghum/Sudan grass, which have been reported to cause a disease known as cystitis syndrome. Alfalfa hay should be inspected for the presence of blister beetles. Even a few beetles, dead or alive, can cause severe poisoning and possibly death. Late cuttings of hay are more apt to contain beetles than those put up early in the year. Fescue can contain an endophyte fungus that can inhibit milk production, cause foaling complications or health problems for foals. Mares grazing pastures containing fescue should be moved to non-fescue grazing at least 90 days before the predicted foaling date.

Concentrates

Commercially-prepared concentrates are cost effective and efficient for meeting the energy, vitamin, mineral, and protein requirements of a pregnant mare. Equine nutrition is not a simple science, and there are different schools of thought that often are based on experience with horses of different breeds, different geographic areas, or different management conditions. Even some veterinarians may give conflicting recommendations. Generally, Morgan mares that receive good quality grass hay in sufficient quantities do fine on a 10 percent concentrate during early gestation and 12-14 percent during late gestation. Mares fed alfalfa or other legume hay will require even lower levels of protein in the concentrate ration.

Supplements

The majority of mares on high level of nutrition will not require supplementation when they have access to good-quality hay or grass, a commercial concentrate ration, and a mineral block. Essential requirements that should be evaluated by examination of feed labels and hay quality include selenium, vitamins A and E, calcium, and phosphorus. Selenium is a mineral required by horses and works in concert with vitamin E for normal musculoskeletal development. Soil in the northeastern United States tends to be deficient in selenium, but many feed mills add selenium to their formulations in these deficient areas. If supplementation with selenium is needed during pregnancy, it should be provided with vitamin E. No more than 1 mg of selenium should be given per day; amounts greater than that could be toxic.

Calcium and phosphorus are required in greater amounts in late pregnancy. Vitamin A levels, while high in early-season grasses, are much lower in stored hay.

Exercise

Mares given opportunity to be physically active tend to have healthy foals with fewer foaling complications. Moderate exercise helps to avoid accumulation of fat and keeps muscles well toned. If the mare is accustomed to being ridden or driven, she can continue to be exercised in a moderate manner for several months of her pregnancy, but intense physical exertion should be avoided. Access to pasture will provide adequate opportunity for exercise.

Vaccinations

The virus that causes rhinopneumonitis is a herpes virus that is similar to the one that causes the common cold in humans. In horses other than pregnant mares, the disease is commonly expressed as a respiratory infection. In pregnant mares, however, abortions may occur, particularly during the eighth to eleventh month of gestation. Therefore, most veterinarians today recommend vaccination with a killed rhinopneumonitis vaccine during the fifth, seventh, and ninth month of pregnancy. The vaccine is available in modified-live and killed forms, but only the killed form should be used for pregnant mares. The other vaccines frequently recommended for pregnant mares during late pregnancy include tetanus toxoid, equine encephalomyelitis, and equine influenza, which, when given to the pregnant mare three to six weeks prior to foaling, will also provide immunity for the foal for some period. Some veterinarians recommend additional vaccines, so it is advisable to discuss the program with your veterinarian early in the mare's pregnancy.

Intestinal Parasites

Pregnant mares should continue on a routine parasite control program as before they were pregnant. Several different products from different chemical families are available. Many of these are safe for use in pregnant mares; however, a few are not. Read all product labels carefully to determine whether the product is contraindicated for pregnant mares. Follow dosage recommendations for all products used for pregnant mares.

Pregnancy Complications

Most pregnancies for healthy mares are routine, but even well cared for, robust mares can experience pregnancy or birthing complications for unknown reasons. Some of the potential abnormalities are described below and additional events and actions to take for them are listed in Table 1. Information provided in Table 1 is also available in a downloadable form from the AMHA website, www.morganhorse.com. Click on "*Resources/Forms*" and select "*Publications.*" Then select "*Red Alert During Pregnancy and Delivery.*" When the document opens, it can be printed and inserted into a plastic page protector for retaining in the foaling kit.

Mild pregnancy edema can occur when circulation is impaired and this condition will be noted as swelling in the legs and/or abdomen. Most cases of pregnancy edema are related to lack of exercise and will be relieved by increasing the mare's activity level.

The prepubic tendon attaches the abdominal muscles to the pubic bone. Particularly for obese or idle mares exhibiting pregnancy edema, the excessive weight of the pregnancy can cause the prepubic tendon to stretch or separate. Treatment for this condition depends on the stage of pregnancy and requires immediate veterinary attention.

Torsion (*rotation*) or preterm rupture of the uterus are serious conditions that require immediate attention by a veterinarian. Signs of these conditions include mild intermittent colic, frequent urination, and any other signs typical of colic or early labor.

Foaling

Some of the normal events that occur during the final weeks of pregnancy as well as during and after delivery are listed in Table 2. This information is also available in a downloadable form from the AMHA website, www.morganhorse.com. Click on “Resources/Forms” and select “Publications.” Then select “Normal Foaling Events.” When the document opens, it can be printed and inserted into a plastic page protector for retaining in the foaling kit.

Gestation averages 340 days and normally ranges from 327 to 357 days. On rare occasions, gestation extends up to 399 days. Foals born before 320 days are considered premature and those born earlier than 300 days seldom survive. Prolonged gestation may be caused by delayed development of the fetus, but if foal movement can be detected and there is no udder enlargement or lactation, it is better to wait for nature to take its course than to induce labor.

Foaling Area

Most people prefer to have the mare foal inside where she can be observed during the latter stage of pregnancy and at parturition (*foaling*). However, if the mare is to foal out in a pasture, she should be separated from other horses or at least have enough space to get away from the others during foaling. Behavior of herdmates at the time of a mare’s foaling can be very unpredictable. The pasture should be checked carefully for hazards such as ditches, swamps, or improper fencing. A separate paddock that is clean with good woven fencing and is free of other safety hazards may be a good alternative to the pasture if inside foaling facilities are not available or desired.

Even though at least 90 percent of foalings are routine and free of complications, many breeders prefer to keep a close watch on the mare as she approaches foaling and as she gives birth. Mares that are to foal inside should be introduced to the place of foaling at least four weeks before the due date. The stall or pen should be spacious, clean, dry, and warm. Good lighting should be provided in the foaling quarters since most mares foal at night. Shavings or sawdust are acceptable for bedding the stall or pen until it appears that foaling time is close. Clean, dry straw is the preferred bedding material for foaling because sawdust, shavings, and sand are associated with postpartum infections. Shavings and sawdust also can irritate foal’s eyes and throat, causing respiratory difficulties.

Monitoring the Mare’s Progression

There are several ways to monitor the mare’s progress toward foaling in a barn setting. The Foalert® is a commercial system that has two basic components—a

transmitter and a receiver. The transmitter is sutured to the vulva one to two weeks before the expected delivery date. When the vulva lips physically separate at birth, the actuating magnet pulls out of the transmitter. This separation activates the transmitter, which in turn activates the receiver. The receiver, in turn, signals an auto-dialer to dial programmed telephone numbers, a pager, or an auxiliary alarm.

The commercial Predict-A-Foal® kit works by measuring levels of calcium and magnesium in the mare's milk. As foaling time nears, these levels begin to rise considerably. The kit includes plastic strips with five indicator squares that are impregnated with special chemicals. Each square contains a different amount of chemical, which will change color according to levels of calcium and magnesium in a sample of milk from the mare. The colors in the squares are then compared with levels shown on a chart supplied with the kit. Specific color changes will predict the probability of the mare foaling within the next 12 hours.

Another test that can be done once a day is to place a drop or two of the mare's milk onto a black plastic surface (*the black plastic top of a photographic film container works well*). Samples taken well before the time of foaling will appear rather clear and watery and the black plastic can easily be seen through the liquid. Later, the secretion will be thicker, syrupy, and amber in color. Within 12-24 hours of foaling, the milk will usually become thick, white, sticky, and almost opaque, and it will be very hard to see the black plastic through the milk. The difference in consistency is due to increases in calcium and potassium levels in the milk. You also may notice large white granules in the milk at this time. It may take some practice to be able to see these differences, but monitoring the appearance of the secretion over several days should enable differences to be detected.

Several types of closed-circuit surveillance cameras can be mounted up high in the stall and wired into television sets or other monitors in the house. Many of the newer cameras operate under very low light conditions and also can be wired to transmit sound. When wiring for sound is not possible, an intercom placed out of the mare's reach in the stall is a practical alternative. Wireless cameras can be used over shorter distances, but resolution and consistency of the signal are not as good as for wired models. These surveillance cameras provide a convenient and reliable means to observe the mare without disturbing her privacy.

The mare should still have the opportunity to go outside and exercise for some period during the last few weeks of her pregnancy, but she should be observed relatively frequently while out in the paddock or pasture. As foaling time approaches, you will need to check the mare more frequently, especially during the night. Some mares initially are overprotective of their foals and difficult to handle for a few hours or days, so you might want to have a well-fitted leather halter on the mare during the time she is under observation and for a few days following foaling.

The Foaling Kit

Materials you should assemble well in advance of the mare's due date and store in a covered plastic tote box include the following:

- Flashlight and extra batteries (*kept dry in sandwich bags*)
- Tail wrap for mare
- Gauze roll, cotton cord, or clamps for tying off umbilical cord (*only needed if there is bleeding*)
- Bandage or other blunt-end scissors
- Sterile, disposable obstetrical sleeve
- Sterile, disposable gloves
- K-Y® jelly
- Roll of cotton
- Fleet® enemas
- Mild, non-detergent soap in squeeze bottle for washing mare's hindquarters
- Non-irritating antiseptic solution for hand washing
- Navel dip (*0.5% chlorhexidine [Nolvasan®] solution*)
- Applicator syringe for applying navel dip
- Several clean towels for drying foal
- Garbage bag for placenta
- Charts of normal and abnormal delivery events (*See Tables 1 and 2*)

A clock should be placed to be easily read from the mare's stall to permit timing of various events during labor and delivery. Additionally, have the telephone number of your veterinarian conspicuously recorded either in the foaling kit or on a wallboard for easy access, if needed. A cell phone or cordless phone accessible from the barn near the mare's stall with the vet's phone number programmed into memory will be useful as well.

Signs of Imminent Labor

Approximately three weeks before foaling, the mare's abdomen becomes enlarged and drops, becoming somewhat pendulous. In some mares, swelling beneath the skin may be observed along the midline of the abdomen in front of the udder. During the last two or three weeks, the muscles of the pelvic area begin to relax and soften. The mare's croup will undergo a gradual distinctive change such that a hollow is noticeable on either side at the root of the tail. Usually within one to two weeks of foaling, the mare's vulva becomes elongated and relaxed. Additional lengthening and softening of the vulva will be observed within 24-48 hours before foaling to accommodate expulsion of the fetus.

The udder begins to enlarge approximately one month before foaling and it often appears more filled at night while the mare is at rest. Closer to foaling, the udder will remain filled at all times of the day and the teats will become enlarged during the final week prior to foaling. Many mares will show a honey-colored wax-like bead of dried colostrum at the end of one or both teats. This "waxing" is often an indication that foaling will occur within the next 12 to 36 hours.

However, some mares wax up to two weeks before foaling and others don't wax at all. In some cases, the wax beads fall off and go unnoticed.

Delivery

Labor is separated into three distinct stages. The first stage lasts one to six hours, but two to four hours is the average duration. During this stage, the cervix is dilating and the foal is repositioning into the delivery position. The mare does not strain, but becomes restless, frequently passing small amounts of urine and feces. She may lie down and get back up frequently.

The second stage is the actual delivery of the foal. It is marked by active abdominal straining and begins when the water breaks. Within a few minutes, the translucent white amnion appears at the vulva. The mare generally lies on her side with legs extended after the water breaks. Some mares will repeatedly get up and down during this stage, especially if disturbed by people entering the stall. Some mares that are nervous or apprehensive about people being in the stall may refuse to lie down, but will usually lie down if left alone.

Most foals are born within 15-20 minutes after the water breaks. The normal presentation of the foal is in the upright position with its head tucked between the forelegs. The tip of the nose should be situated just about the level of its knees. Soles of the feet are pointing down. One foreleg is generally slightly forward of the other, which facilitates passage of the foal's shoulders. If the feet are even, the shoulders may become locked in the birth canal. The amnion covering the foal usually ruptures when the front feet protrude through the vulva, but if this does not happen naturally, step in to break the sac from the foal's nostrils manually. Other than this, most mares require no further assistance. In fact, too much interference is likely to cause problems and disturb the mare. However, certain events require veterinary assistance, including the following:

- **Failure of the white amnion to appear soon after the water breaks**
- **Appearance of the red chorioallantois membrane instead of the white amnion**
- **Failure of the appearance of one or both feet or the foal's head after the amnion appears**
- **Straining without any progress in the foal's delivery**
- **Repeated shifting and rolling during any stage of labor**

The foal generally will rest with its hind legs inside the mare's vagina for ten to 20 minutes after expulsion. During this resting period, additional blood flows from the placenta to the foal. Do not sever the cord; it will break naturally when the foal or mare begins moving around. When the cord does break, it generally stretches and shreds and may ooze for up to one minute. This is normal; however, if blood streams from the navel for more than one minute, tie off the stump with cotton cord, gauze strip, or umbilical clamp. The tie or clamp should be removed within hours after being applied.

The third stage of labor is the passage of the afterbirth (*placenta*). It is accompanied by mild pain from new uterine contractions. The membrane will

hang from the mare's vulva and may reach the floor. Use a length of gauze or cotton cord to tie it up above the hocks. More than one tie may be required before the afterbirth is completely expelled. Never tug on the partially expelled membrane to hasten its separation because it could cause irreparable damage to the mare's uterus. In most cases, the membrane will be completely expelled within one hour. Retention of the afterbirth for more than three hours requires attention from a veterinarian.

The mare usually will remain recumbent for up to 30 minutes. She will probably nicker to the foal and if she can reach him in those early minutes, she will lick and sniff him. This is a critical time for the mare and foal to form their bond and it is advisable to perform only required procedures and avoid excessive handling that could upset their bonding or cause the mare concern during the first hour or two after birth. Following its expulsion, the afterbirth should be removed and placed in a garbage bag to be examined by the veterinarian later.

The New Foal

Soon after the umbilical cord separates, the navel should be dipped in a 0.5 percent solution of chlorhexidine (*Nolvasan*). This solution does not cause irritation of skin that is associated with the previous use of iodine solutions. Dip the navel twice more during the next three hours or so, then twice daily for the next two days.

The foal should sneeze and shake its head with stimulation within five to ten minutes after birth and a suckle reflex should be observed within 20 minutes. If the foaling area is chilly, the foal can be rubbed dry with large towels. The foal should be able to stand unassisted within one to two hours and nurse within three hours after birth. As soon as the foal stands, administer a Fleet enema and observe for passage of the meconium, which is greenish-brown to black hard waste material from the foal's intestines. Do not use excessive force to administer the enema. The foal should urinate within three to 12 hours after birth. By 24 hours, the foal's feces will be a pasty, yellow "milk feces."

Unlike humans and many other animal species, horses are unable to provide immunity to foals through the placenta. The newborn foal actually is born with no immunoglobulins and receives the antibodies from the mare's colostrum. The foal's capacity to absorb antibodies is highest during the first eight to 12 hours of its life, but this ability is lost after 24 hours. In some cases, the foal does not receive the necessary immunoglobulins because they are not present in the colostrum, the foal fails to nurse for several hours, or the mare was not adequately immunized before foaling. Failure to transfer antibodies leaves the foal susceptible to overwhelming infections. Levels of the immunoglobulin in the mare's colostrum can be detected by commercial tests or the concentration of immunoglobulins in the foal's bloodstream can be measured by a rapid test at approximately 12 to 18 hours after birth. If levels are lower than the minimum safe level at 18 to 24 hours after birth, the veterinarian must administer colostrum or colostrum substitutes intravenously. The vaccination schedule for

the foal during its first year of life should be on the advice of your veterinarian.

Foals normally nurse three to seven times per hour and they nap several times each day. Exercise is an important factor for the growth and condition of the foal, and most people like to turn the pair out in a private paddock on the second or third day of life for the foal, weather permitting.

The foal can be introduced to a lightweight, soft leather halter within a day or two of birth. The halter should be snug and fully adjustable in the throatlatch, crown, and noseband areas. Remove the halter while the foal is turned out to avoid the possibility of a foot or other object being caught in the halter. A long cotton lead attached to the halter and wrapped in a figure-eight pattern around the chest and rump is recommended to begin teaching the new foal how to lead within the first few days of life. Some foals will stick close to their mom when it is time to venture out to the paddock; however, Morgan foals tend to be more precocious than foals of most other breeds. If the paddock is more than a few feet from their stall, in a matter of days, the Morgan foal will be off to investigate new discoveries while mother frantically screams and whirls to have the little miscreant return to her side.

Registering the Foal

To register a Morgan foal with AMHA, a registration application must be filled out completely and submitted to the Registrar. Applications can be requested by phone from the AMHA office or downloaded as a pdf file from the AMHA website (www.morganhorse.com). Click on Breed Resources and select The Registry – Registry Services, Fees, & Forms.

The form provides spaces for three name selections, starting with your first choice. Other information to be provided on the form includes the names and registration numbers of the sire and dam; coat color, eye color, and markings of the foal; date of birth; and sex. Fees to register a foal increase as the age of the foal increases. It usually is advisable to wait at least one month after the foal's birth to permit a better assessment of leg markings, but submitting the application prior to the foal's sixth month will be the most economical.

Following submission of the completed registration application, a DNA kit in a well-identified envelope will be sent to you from a lab. Instructions for obtaining hair samples (*with roots*) from the mane and/or tail are provided with the kit. Submission of these hair samples will be used by the laboratory to verify the parentage of the foal to the sire and dam listed on the registration application. Verification of parentage by DNA is a requirement for registration of all Morgan foals. The laboratory does not send results of the testing to the owner, but reports findings to the AMHA Registry.

It is rare these days that a foal does not test back to the reported sire or dam, but occasionally an “*exclusion*” may occur, which could require testing of additional horses and/or a query of the stallion and mare owners. The term “*exclusion*” is applied to any registration application for a horse that does not test back by DNA to one or both recorded parents. Some of the common reasons for

registry exclusions include the use of sequential stallions for pasture breeding when pregnancy has not been adequately evaluated throughout the breeding season, undetected breedings by young colts in adjacent or same fields with mares, accidental shipment of semen from the wrong stallion, switching of foals between mares at pasture, accidental switching of hair samples in the DNA kits when more than one foal is sampled, and incorrect recording of dam or sire information on the registration application. In most cases, a query or additional testing will resolve the exclusion and a correct registration certificate can be issued. However, careful attention to details for all procedures will preclude many of these problems.

Following completion of the DNA testing, the Registrar will print and mail a registration certificate to the owner. The certificate should be placed in a plastic page protector or left in the original mailing envelope with the cardboard protector to keep it in pristine condition for many years.

The reward for your tremendous investment, your research, and your patience will be an agile, energized, and curious Morgan foal who bucks, spins, and dashes around to investigate every nook and cranny of its world and comes bounding up to the paddock fence or the front of the stall the moment it sees you standing there—a grand reward indeed!

Handling the Foal

After being led for a few days behind its dam with a halter and a soft cotton butt/chest rope, the foal will begin to follow along easily with the halter and lead without the rope around the butt and chest. Never get into a pulling contest with a young foal, as they can easily sustain damage to their neck by being pulled too hard by the halter. It is better to resort to the butt rope or placing an arm behind a foal that is reluctant to move along.

While the foal is young and small is an ideal time to introduce many new handling procedures, such as lifting its legs. Be sure the foal is standing well balanced to practice this procedure so that it will not be likely to fall over when a leg is picked up off the ground. Clipper noises, grooming tools, and many other new items and sounds also can be introduced to the young foal. These introductions should be done with patience and reassurance to the foal and its dam.

Weaning

The time to wean depends on the individual animal and the situation at the farm. As you watch and observe the mare and foal, you will be able to analyze the degree of dependence the two have and judge their reactions to any changes in their daily routine. The actual age of the foal is probably not be the critical factor for determining readiness for weaning, but most foals can be weaned around five or six months of age. By that time, the mare's milk production has dropped off significantly, and their relationship is more of an emotional nature than a nutritional one. It is important that the foal be accustomed to handling, being

led with a halter and lead, and eating grain and hay.

There are several ways to wean; some are gradual and some are abrupt. Whether you choose a gradual method or one that is abrupt, it can be a very traumatic and potentially dangerous time for the mare, the foal, and for the owner, so certain precautions need to be taken to avoid injuries.

As an example of an abrupt weaning method when there are many foals born at a farm, some breeders will keep the foal in familiar surroundings with a group of its companions while removing two or three mares at a time from the group. The foals might miss their dams and search for them for a short period, but they will generally become occupied by playing with their companions within a few hours. One strategy often used in this method is to remove the more nervous or difficult mares first. Other mares can be removed from the group at two- or three-day intervals until all have been weaned. Some breeders will move a “baby-sitter” gelding or older, calm mare in with the group of foals.

Most research indicates that gradual methods of weaning are less stressful. The mare and foal can be put in adjoining pens, paddocks, or stalls where the foal will be reassured by the presence of its dam, but it will not be able to nurse. Be sure fences and gates are safe for this type of separation. The separation can be started for a few hours each day for one or two weeks, followed by overnight separation daily for another week. The foal can be put back with the dam to nurse for a few hours each day. One bit of advice regarding this practice is to be sure the foal has had time back with its dam before leading the pair out to a paddock or pasture, if that is part of the daily routine. They can be very difficult to handle when they are anticipating getting back with their dam.

When the final separation is made, be sure the foal has adequate opportunity to exercise daily. Once the pair has been completely separated, the focus must go to the mare. Often times, especially for foals six months and older, the mare is actually relieved to be free of her responsibility. However, it is important to be sure the mare’s milk supply dries up without any problems. To facilitate this, decrease the mare’s grain ration during the period of gradual separation. During the first 48 hours after final weaning, the mare should receive no grain but should have free access to hay, and she should get plenty of daily exercise. The hay will be adequate for her nutritional needs during this period and will help to keep her content. Never withhold or reduce water rations from the mare. If the mare seems to have much discomfort from a distended udder, cocoa butter or camphorated oil can be applied. It may be tempting to milk out the mare to relieve some of the pressure, but this practice will only encourage more milk production and prolong the discomfort. It may also increase the mare’s discomfort because hand milking is much more painful than nursing by the foal. If, however, a mare’s udder remains hard and filled for more than four days after weaning, a small amount of milk should be removed to check for mastitis.

Moving On

Your new foal is now entering another exciting stage in its life. There is so much to learn and so much growing left to do. They go through growth stages where they are alarmingly unattractive, but like the ugly duckling, the beautiful, elegant animal you remember when the foal was three months old will re-emerge and dazzle you again with its beauty and grace. There can be great satisfaction in each step along the way from the time you select the ideal stallion until the day you stand in the stall and watch the new, innocent foal nicker for the first time to its mother. There should be a great sense of pride in what has been accomplished by everyone involved, most of all, yourself.

Editor's Note: This booklet is intended to be a basic guide for breeding a mare, but you may find you have concerns or questions that are not answered here. It is recommended to establish a good relationship early in the process with a veterinarian knowledgeable in equine reproduction, who will be your most valuable resource for additional guidance.

About the Author

Kathy Newcomb grew up in the heart of Morgan country in Woodstock, Vermont. She has been involved with Morgans since her early teens and had her introduction to the breed through her neighbor Dana Kelley, breeder of Royalton Morgans. Inspired by the lovely and versatile Morgan Jubal Ashmore that she purchased in 1988, Kathy purchased two weanlings from the estate of Frances Bryant and later leased a mare and bred her first Morgan bearing her Blythewood prefix in 1995. Today, Kathy and her husband Stu own a farm in central New Jersey where they produce one to three Morgan foals each year. She currently serves on the AMHA Board of Directors and is co-chair of the AMHA Breeders' Committee. Earning a living as a medical writer, Kathy has co-authored several papers for animal and human health products.

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Photography by Suzy Lucine

Glossary

Afterbirth: The placenta.

Amnion: The innermost membrane that surrounds the fetus. It is filled with fluid that protects the fetus from mechanical injury.

APGAR score: Scores (0-2) given to newborns 1 and 5 minutes after birth. Evaluates activity, pulse, grimace, appearance, and respiration.

Cervix: The muscular structure that separates the uterus from the vagina.

Chorioallantois: The membrane formed from the fusion of the chorion (outermost layer of the placenta) and the allantois (inner sac of the placenta)

Colostrum: The initial milk from the mare, which contains important protective antibodies for the foal during the first few months of its life.

Conformation: How the angles and parts of the body harmonize with each other.

Corpus luteum: A yellow glandular mass in the ovary formed by an ovarian follicle that has matured and discharged its egg.

Diestrus: Quiescent period of the mare's cycle, 12 to 13 days in length.

Dystocia: Abnormal or difficult labor.

Endocrine: Glands and body structures that secrete hormones into the blood or lymph, affecting other organs in the body.

Estrus: The phase of the mare's estrous cycle during which the mare is receptive to a stallion. It is usually 4 to 7 days long and ends with ovulation.

Fescue: A type of grass that can contain a fungus that can affect milk production in mares.

Follicle: A growth within the ovary that contains an egg.

Gestation: Pregnancy term.

Heritability: The extent to which an individual animal is influenced by its genetics as opposed to characteristics from the environment. Human chorionic gonadotropin: A hormone found in the urine of women during the first 50 days of pregnancy, which is used to stimulate ovulation in mares.

Immunoglobulin: Protein in the blood that play an essential role in the body's immune system.

IgG: Immunoglobulin G, which are antibodies that pass through the placenta to the fetus for immunity to many types of infections through their first few months of life.

Killed vaccine: Vaccine produced from viruses that have been killed.

Lactation: Producing milk.

Modified-live virus vaccine: Vaccine produced from viruses that have been modified to alter their ability to cause disease.

Modifier: Modifier genes (bay, flaxen, grey, sooty/smuddy, and mealy/pangare) work in conjunction with base coat color and create different visual results depending on the base coat color and other genetic factors.

Ovulation: Release of the egg from a mature follicle.

Parturition: Birth.

Phenotype: The observable attributes of an organism.

Placenta: The vascular organ that surrounds the fetus. It connects to the fetus by the umbilical cord and serves as the source of nutrients to and distribution of waste from the fetus.

Placentitis: Inflammation of the placenta.

Progesterone: A hormone produced by the corpus luteum that quiets uterine contractions and supports the pregnancy.

Relaxin: A hormone that facilitates birth by causing relaxation of cervix and other structures.

Resorb: To absorb or dissolve.

Semen extender: Material containing nutrients and antibiotics used to preserve and dilute semen for insemination.

Type: A set of distinguishing characteristics that give a horse the defined look of its breed.

Vesicle: Fluid-filled sac that precedes formation of the embryo.

Bibliography and Related Reading

Ahmed P: *Shipping Semen? How to Have a Successful Experience*. Winlock Publishing Co; 1998.

Bennett, D: *Principles of Conformation Analysis. Vol I-III*. Gaithersburg, MD: Fleet Street Publishing; 1988.

Breeding Management & Foal Development. Grand Prairie, TX: Equine Research, Inc; 1982.

Cable C: *Understanding the Broodmare: Your Guide to Horse Health Care and Management*. Lexington, KY: Eclipse Press; 1999.

Darling K, Griffin JM: *Veterinary Guide to Horse Breeding*. New York: Pearson Education; 1999.

Equine Genetics & Selection Procedures. Grand Prairie, TX: Equine Research, Inc; 1978.

Harris SE: *The USPC Guide to Conformation, Movement, and Soundness*. NY, Howell Book House; 1997.

Lose MP: *Blessed are the Broodmares*. New York: Howell Book House; 1991.

Loving NS: *Conformation and Performance*. Ossining, NY: Breakthrough Publications; 1997.

Miller RM: *Imprint Training of the Newborn Foal*. Colorado Springs, CO: Western Horsemen; 1991.

Samper J, ed: *Equine Breeding Management and Artificial Insemination*. Philadelphia; WB Saunders; 2000.

Sponenberg DP: *Equine Color Genetics. Ed. 2*. Ames, IA: Iowa State University Press; 1996.

The Horse (www.thehorse.com). Herbert, KS, ed. Lexington, KY; Blood-Horse Publications.

Asbury AC: Evaluating reproductive health in mares. Apr 2002: Article Quick Find #3423.

Briggs K: Breeding facilities. Jan 1998: Article Quick Find #420.

Evers SL: Factors affecting fertility with cooled semen. Oct 2002: Article Quick Find #3971.

Foss J: Breeding planning: Selecting a sire. Jan 2002: Article Quick Find #3223.

Herbert KS: Neonatal emergency management in the field. Nov 2002: Article Quick Find #3927.

King M: Foaling problems. Dec 2001: Article Quick Find #3174.

LeBlanc M: Find reproductive problems. Nov 2002: Article Quick Find #3886.

Piscopo S: Modifying semen extender. June 2002: Article Quick Find #2719.

Pycock, JF: Breeding soundness exam of the mare. Nov 2002: Article Quick Find #3916.

Sellnow L: Should I breed my mare? Dec 2000: Article Quick Find #86.

Sellnow L: Short cycling mares. May 2000: Article Quick Find #184.

Sellnow L: Artificial insemination. Feb 2000: Article Quick Find #236.

Sellnow L: Teasing. Feb 1999: Article Quick Find #285.

Sellnow L: Shed ready? Breeding soundness exam. Mar 2000: Article Quick Find #3040.

Sellnow L: Assessing sperm quality. Jan 2002: Article Quick Find #3249.

Sellnow L: AAEP Convention 2001: Reproduction research. Feb 2002: Article Quick Find #3327.

Sellnow L: Effects of airport radiation on shipped semen. Dec 2002: Article Quick Find #3978.

Sellnow L: In the aftermath of birth retained placenta. Jan 2003: Article Quick Find #4031.

Sellnow L: AAEP Convention: Reproduction. Mar 2003: Article Quick Find #4209.

Strickland C: AI training for stallions. Feb 2001: Article Quick Find #67.

Toby, M: Breeding contracts: Read the fine print. Dec 2001: Article Quick Find #3170.

Websites

Predict-A-Foal test kit

www.ahcpi.com/products/predict.html

Equine reproduction
www.equine-reproduction.com

Equine color genetics information
www.equinecolor.com

Equine reproduction: Colorado State University
<http://equinescience.colostate.edu/content/view/10/13/>

Several anatomy and conformation articles
www.equisearch.com/care/anatomy/

Hamilton Research semen transport systems
www.equitainer.com/index.htm

Foal Alert birth monitoring system
<http://www.foalert.com>

Search “equine genetics” and “equine reproduction”
www.google.com

Morgan horse resources and downloadable forms
www.morganhorse.com

Horse genetics
www.vgl.ucdavis.edu/~1vmillion



Table 1. Abnormal Events During Pregnancy and Delivery

Event	Cause	Actions
Premature udder development and lactation.	Wrong breeding date, placentitis, twins.	Check due date. Call vet for exam and to check relaxin levels.
Vaginal discharge.	Placentitis, impending abortion.	Call vet for exam and culture.
No udder development or no milk production.	Wrong due date, fescue toxicity, endocrine abnormality.	Check due date. Check pasture for fescue. Call vet to evaluate hormone levels. Check nutrition levels.
Sudden, excessive abdominal enlargement.	Abdominal hernia, prepubic tendon rupture, twins, excessive fetal fluids. Possibly just foal dropping near due date.	Call vet for exam.
Premature delivery (<325 days).	Infection, twins, other unknown cause.	Call vet.
Prolonged gestation (>360 days).	Fescue toxicity, pituitary tumor (older mares), wrong due date.	Check breeding dates. Call vet for exam and hormone levels.
Prolonged Stage II labor.	Dystocia, low blood calcium levels.	Call vet. Perform vaginal exam to determine fetal position and assist delivery. Walk mare until vet arrives to reduce straining and rolling.
Premature placental separation (red bag delivery): velvety membrane appears at vulva instead of while translucent amnion.	Premature detachment of placenta from uterus, resulting in fetal asphyxia.	Call vet. Rupture red membrane using blunt-end scissors. Extract foal encased in amnion. Rupture amnion. Deliver as quickly as possible. Perform APGAR score and administer oxygen. Initiate CPR if not breathing.
Meconium staining of placenta, fetal fluids, foal.	Fetus passes meconium in utero in response to asphyxia or other birth stress.	Call vet. Clean meconium away from mouth and nose. Perform APGAR score. Provide oxygen, monitor breathing rate and effort.
Colic (mare) after foaling.	Colon torsion, impaction, uterine or bowel trauma during foaling, resulting in peritonitis, uterine artery rupture.	Call vet. Give Banamine and move foal to safe place. Mare requires complete vet exam.
Retained placenta (>3 hours).	Unknown causes.	Call vet. Tie up with string or gauze or by knotting it on itself to keep mare from stepping on the placenta. Treat according to vet's recommendations.
Heavy placenta (>10% of foal's weight), areas of placenta discolored.	Suspect infection.	Call vet for early exam of foal. Check foal's white blood cell count and start on antibiotics.
Umbilical cord hemorrhage.	Premature or traumatic cord rupture.	Clamp umbilicus or tie with umbilical tape soaked in disinfectant. Dip umbilicus. Remove clamp or tie when bleeding has stopped.
Foal does not follow normal developmental time line. Slow to suckle, stand, and/or nurse.	Weakness due to infection, asphyxia, or immaturity.	Call vet for early exam of foal. Be sure foal received adequate colostrum of IgG substitute within the first 2-6 hours of life.
Colic (foal).	Meconium impaction most likely.	Give enema. If no meconium passes and/or foal remains colicky, call vet.
Yellow mucosal membranes in the foal.	Jaundice due to herpes infection or hemolysis due to incompatible blood types between mare and foal.	Call vet. If foal is yellow and anemic, the cause is hemolysis.
Foal's serum IgG is <400-800mg/dl.	Failure of passive transfer due to poor quality colostrum, failure to nurse enough colostrum, or inability to absorb antibodies.	If foal is less than 12 to 18 hours old, give more colostrum of IgG substitute; if older than 18 to 24 hours, give plasma transfusion.
Mare rejection of foal.	Maiden mare might be afraid. Some are outwardly aggressive toward foal.	Sedate mare. Keep stall traffic to a minimum. Show mare foal's rear end rather than face. Can use hobbles. Measure progesterone levels.

Table 2. Normal Foaling Events

Event	Cause	Actions
Premature udder development and lactation.	Wrong breeding date, placentitis, twins.	Check due date. Call vet for exam and to check relaxin levels.
Vaginal discharge.	Placentitis, impending abortion.	Call vet for exam and culture.
No udder development or no milk production.	Wrong due date, fescue toxicity, endocrine abnormality.	Check due date. Check pasture for fescue. Call vet to evaluate hormone levels. Check nutrition levels.
Sudden, excessive abdominal enlargement.	Abdominal hernia, prepubic tendon rupture, twins, excessive fetal fluids. Possibly just foal dropping near due date.	Call vet for exam.
Premature delivery (<325 days).	Infection, twins, other unknown cause.	Call vet.
Prolonged gestation (>360 days).	Fescue toxicity, pituitary tumor (older mares), wrong due date.	Check breeding dates. Call vet for exam and hormone levels.
Prolonged Stage II labor.	Dystocia, low blood calcium levels.	Call vet. Perform vaginal exam to determine fetal position and assist delivery. Walk mare until vet arrives to reduce straining and rolling.
Premature placental separation (red bag delivery): velvety membrane appears at vulva instead of white translucent amnion.	Premature detachment of placenta from uterus, resulting in fetal asphyxia.	Call vet. Rupture red membrane using blunt-end scissors. Extract foal encased in amnion. Rupture amnion. Deliver as quickly as possible. Perform APGAR score and administer oxygen. Initiate CPR if not breathing.
<2 hours after.	Foal has nursed. Some meconium has been passed.	If foal has strong suckle, but has not found udder, collect colostrum and bottle-feed foal.
<3 hours after.	Stage 3 labor complete. Placenta has passed.	Save, bag, and weigh placenta. Should weigh 10% of foal weight.
3 to 12 hours after.	Foal has urinated for the first time.	Observe to be sure no urine drips from umbilicus.
<18 to 24 hours after.	Meconium passage is complete. Manure is now pasty, yellow "milk feces." Colostral antibody absorption is complete.	Check IgG (>400 to 800 mg/dl).
24 hours after.	Foal nursing 3 to 7 times per hour. Regular urination, defecation. Mare has normal manure passage and normal temperature.	Deworm mare with ivermectin. Complete physical for mare and foal.

Table 1 & 2 adapted from guidelines provided by the Mid-Atlantic Equine Medical Center, Ringoes, New Jersey.

Appendix 1.

The Morgan Standard

- A. **Type** is the ideal or standard of perfection for the breed. A Morgan is distinctive for its stamina and vigor, personality and eagerness and strong natural way of moving.
- B. **Conformation** is the degree of perfection of the component parts and their relationship to each other.
1. The **head** should be expressive with broad forehead; large prominent eyes; with straight or slightly dished short face; firm fine lips; large nostrils and well-rounded jowls. The ears should be short and shapely, set rather wide apart and carried alertly. Mares may have a slightly longer ear.
 2. The **throatlatch** is slightly deeper than other breeds and should be refined sufficiently to allow proper flexion at the poll and normal respiration.
 3. The **neck** should come out on top of an extremely well-angulated shoulder with depth from top of withers to point of shoulder. It should be relatively fine in relation to sex. It should be slightly arched and should blend with the withers and back. The top line of the neck should be considerably longer than the bottom line. The stallion should have more crest than the mare or gelding. An animal gelded late in life may resemble the stallion more closely.
 4. The **withers** should be well defined and extend into the back in proportion to the angulation of the shoulder.
 5. The **body** should be compact with a short back, close coupling, broad loins, deep flank, well-sprung ribs, croup long and well muscled with tail attached high, carried gracefully and straight. A weak, low, or long back is a severe fault. The Morgan horse should not be higher at the croup than at the withers.
 6. The **stifle** should be placed well forward and low in the flank area.
 7. The **legs** should be straight and sound with short cannons, flat bone, and an appearance of over-all substance with refinement. The forearm should be relatively long in proportion to the cannon. The pasterns should have sufficient length and angulation to provide a light, springy step.
 8. The structure of the **rear legs** is of extreme importance to the selection of a long-lasting equine athlete. Any sign of poor angulation of the hocks, sickle hocks or cow hocks must be considered a severe fault. Lack of proper flexion of the hock is cause for very close examination of the entire structure of the rear legs and should not be tolerated in breeding stock or show ring winners.
 9. The **feet** should be in proportion to the size of the horse, round, open at heel, with concave sole and hoof of dense structure.

10. Viewed from the front, the **chest** should be well developed. The front legs should be perpendicular to the ground and closely attached to the body.
 11. Viewed from the side, the **top line** represents a gentle curve from the poll to the back, giving the impression of the neck sitting on top of the withers rather than in front of them, continuing to a short, straight back and a relatively level croup rounding into a well muscled thigh. The tail should be attached high and carried well-arched. At maturity the croup should NOT be higher than the withers. The under line should be long and the body deep through the heart girth and flanks. The extreme angulation of the shoulder results in the arm being a little more vertical than in other breeds, placing the front legs slightly farther forward on the body. The front legs should be straight and perpendicular to the ground. The rear cannons should be perpendicular to the ground when points of hocks and buttocks are in the same vertical lines.
 12. Viewed from the rear, the **croup** should be well rounded, thighs and gaskins well muscled. Legs should be straight. The gaskin should be relatively long in relation to the cannon. The Morgan should portray good spring of rib and well-rounded buttocks. Slab-sided individuals should be faulted.
 13. The **height** ranges from 14.1 to 15.2 hands, with some individuals under or over.
 14. Horses must be **serviceably sound**-i.e. must not show evidence of lameness, broken wind or complete loss of sight in either eye.
 15. **Stallions two years old** and over must have all the fully developed physical characteristics of a stallion. Mature stallions must be masculine in appearance. Mares must be feminine in appearance.
 16. **Coat or eye color** shall have no bearing when judging Morgan horses.
 17. **Brands**, including freeze brands, shall not be discriminated against in any class.
- C. **Other distinctive attributes** of the Morgan horse are his presence and personality, including:
1. Animation
 2. Stamina
 3. Vigor
 4. Alertness
 5. Adaptability
 6. Attitude
 7. Tractability

Appendix 2.

BREEDING CONTRACT-ON FARM

I. The undersigned, owner of the mare, _____, AMHA # _____ hereby agrees to breed said mare to the stallion: _____, AMHA # _____, standing at STALLION OWNER FARM and pay a breeding fee of \$xxx; payable \$xxx booking fee, \$xxx balance due upon 50-day positive pregnancy exam.

II. OTHER EXPENSES

- A. It is understood and agreed that in addition to the above stated fee, the mare owner shall pay board expenses at the rate of \$xxx per day for an open mare, or \$xxx per day for a mare and foal, **plus veterinarian's expenses** including drugs, medications, and supplies as required, farrier expenses and all other expenses reasonable and necessary to insure the well being of the mare. This will include collection & handling charges to cover the cost of preparing the semen for insemination. The initial collection fee is \$xxx, all others will be billed through veterinarian.
- B. All charges must be paid in full before the mare departs.

III. CONDITIONS FOR ACCEPTANCE

- A. Mare owner acknowledges, agrees and certifies that the mare is duly registered in THE AMERICAN MORGAN HORSE ASSOCIATION and that she is halter broken and her hind shoes shall have been removed, (consent for which is hereby given).
- B. Prior to or at the time of arrival of the mare, STALLION OWNER shall be furnished with a Veterinarian's Certificate, certifying:
- (1) That the mare has been examined and is in good health and condition to be bred;
 - (2) That the mare has received a negative Coggins test;
 - (3) That the mare has received a negative uterine culture.

IV. RETURN SERVICE

- A. The stallion owner guarantees a live foal from this mating. A live foal is defined as one that stands and nurses. Should the MARE abort at any time after her departure from STALLION OWNER FARM, or should her foal be born dead, return service during the same or the next calendar breeding season shall be offered to owner of the mare.
- B. This guarantee shall not apply unless:
- (1) The stallion owner is notified by registered or certified mail, return receipt requested, within forty-eight (48) hours of delivery of the aborting or the foal's death;
 - (2) A statement by a licensed veterinarian follows within ten (10) days setting forth the details thereof and certifying that such abortion or

death did not result from any act or omission of the Owner, or any other party subsequent to the mare's departure, in foal, from STALLION OWNER FARM and that all due care had been exercised and that said mare had been afforded all reasonable protection.

V. WAIVER OF LIABILITY

- A. STALLION OWNER agrees to and shall exercise reasonable care attention and judgment in the board, upkeep maintenance and breeding of the mare and/or foal while on its premises or in its continuous care and control. Mare owner hereby waives any and all claims by reason of any injury, escape, disability or death while the mare and/or foal is on the premises of STALLION OWNER FARM or in its continuous care and control.
- B. The mare owner shall not be liable or responsible for any damage, disease, injury or death to the horses or other property belonging to or in the care, custody and control of STALLION OWNER, or any person in its employ whether or not caused by the mare and/or foal.

VI. GENERAL UNDERSTANDINGS

The parties further agree as follows: In the event of injury to or sickness of the mare and/or foal, STALLION OWNER shall immediately notify the mare owner and time and exigency permitting, will not perform or permit to be performed anything other than the usual and conventional medical veterinary procedures without prior consultation with the mare owner or his veterinarian:

DR. _____

Address: _____

Phone: _____ Fax: _____ E-mail: _____

VII. This contract, signed by the respective parties at the places and on the dates set forth below, constitutes the entire agreement between the parties and same may not be amended or modified, except by a mutual exchange of written instrument, nor may this Contract or any rights or obligations hereunder be assigned without the prior written consent of both parties.

VIII. This contract applies only to the **xxxx-breeding season**, with privilege of return during such and the ensuing year only. Stallions are available for breeding February 15-July 15.

Stallion owner/agent:

By: _____ Date: _____

Mare owner: _____ Date: _____

(Signature)

Address: _____

Appendix 3.

XXX MORGAN HORSE FARM
SEMEN TRANSPORT BREEDING CONTRACT

STALLION OWNER, ADDRESS as owner (hereinafter called Breeder) of the stallion, _____ AMHA# _____, and agent _____ (hereinafter called Agent), do hereby agree to breed:

The mare:

Name: _____ AMHA# _____

Sire: _____ Dam: _____

Owned by:

Name: _____

Farm Name: _____

Address: _____

City: _____ State: _____ Zip: _____

Phone: _____ Fax: _____

E-mail: _____

(Hereinafter called the mare owner). Mare owner does hereby agree to have the mare bred to: STALLION under the following conditions:

- A. The breeding fee shall be \$xxxx and shall be paid by the owner to the Breeder as follows:
 1. \$xxxx paid as a booking fee upon execution of this contract (non-refundable)
 2. \$xxxx paid when the mare is pronounced safely in foal. Payment is due before 55 days of pregnancy (see Return Privileges/Live Foal Guarantee, Item A).

- B. Collection/Shipping Fee: Owner shall pay a nonrefundable collection/shipping fee of \$xxx to agent upon execution of this contract, which must be executed and returned by mare owner prior to shipping of semen. This fee covers the veterinarian fees for one collection, the expenses of one shipment of semen, and the use of the container for that one and all future shipments made hereunder. All subsequent shipments of semen will be billed \$xxx by the stallions agent to the mare owner. **Additionally, if a shipment needs to be delivered to the airport a \$xxx fee will be added to that shipment.** These charges are the full responsibility of the mare owner. NO SEMEN WILL BE SHIPPED WITHOUT FIRST PAYMENT. All future shipments will be billed and are payable ON RECEIPT. If not paid within 30 days, semen will be held until payment is received.

- C. Breeding Agreement: Agent shall collect, prepare for shipment & ship live semen to mare owner at designated address specified by mare owner. A licensed veterinarian must administer the semen on the day of delivery to mare owner or its designee, failing which the attached Live Foal Guarantee shall not apply.
- D. All parties agree that semen shipped under this contract provides for the registration of **one** foal. If this shipment results in the birth of two foals, an additional stud fee will be due within 30 days of foaling.
- E. Health Requirements for Semen Transport: Internal examination and negative uterine culture by a licensed veterinarian within thirty days prior to first breeding. To be received by agent prior to first shipment of semen.
- F. Container Supplied by Agent. The mare owner must place on deposit the sum of \$xxx with the agent to insure the return of the shipping container. A fee of \$xxx is nonrefundable on the container per season. Two checks shall be made payable to **STALLION OWNER AGENT**, one for \$xxx and the other for \$xxx. When all fees are paid and mare is in foal the \$xxx check will be voided and shredded. In addition, to insure prompt return of the container to the agent, a \$xxx per day late return charge will be deducted from the security deposit. For every 24-hour period or period thereof beginning 5 working days after the mare owner receives the shipping container and until the container is received by agent, except in the event of strikes, natural disasters, and other situations beyond the mare owner's control.
- G. All parties agree that semen shipped under this contract will be used only for inseminating the mare named above.
- H. If stallion dies or is not able to produce viable semen it will be the **option** of the stallion owner to provide a substitute stallion. If a substitute is unavailable and/or unacceptable, the booking fee will be forfeited.
- I. All payments are to be made payable to **STALLION OWNER AGENT**.

RETURN PRIVILEGES/LIVE FOAL GUARANTEE

- A. Mare must be examined by a licensed veterinarian at or before 50 days after last date bred, and **Agent must be notified of her breeding status after each examination or all guarantees are null and void.**

- B. Should mare abort, absorb the fetus, or fail to conceive, **return privileges are guaranteed in the current season (February 15 - July 15)**. A substitute mare may be used upon approval of Agent. At the end of the current season, Owner shall have the option of rebooking in the following season but contract is only valid for two full breeding seasons. If the said mare does not settle within the two breeding seasons this contract becomes null and void and all money paid is forfeited.

- C. Should the mare fail to produce a live foal (defined as one that stands and nurses), return privileges are guaranteed for the following season. **Rebooking in the following season will require additional collection/shipping fees.**

- D. This guarantee does not apply unless the following requirements are met:
 - 1. Breeder is notified by registered or certified mail, return receipt requested, within 48 hours of delivery of the aborted fetus or the foal's death.
 - 2. A statement by a licensed veterinarian follows within 10 days of setting forth details thereof and certifying that such abortion or death did not result from any act or omission of Mare Owner and that all due care had been exercised and that the mare had been afforded all reasonable protection.

Signatures:

Owner of Mare: _____ Date: _____

Breeder/Agent: _____ Date: _____

Address: _____

Phone 1: _____ Phone 2: _____



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