



MANAGEMENT OF THE BROOD MARE

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The key to a high level of reproductive efficiency is the strict adherence to a comprehensive management program. This holds true whether you have one or 100 mares. The general areas of management to be considered are:

Selection - Do not select a brood mare simply because she cannot do anything else. Structural correctness, overall quality, temperament, and suitability to your needs should be the basis of your selections.

When selecting stallions to breed to your mares, the following points should be considered:

- 1) The stallion's performance record.
- 2) The performance of his offspring.
- 3) The performance of his sire and dam.
- 4) Conformation - the stallion's and mare's conformation should complement each other.
- 5) Cost - this could be the limiting factor.

Nutrition - Be aware of the fact that a mare's nutritional requirements change during different stages of the reproductive cycle. Her requirements are greater during the last third of gestation (pregnancy) and throughout lactation than at any other time of the year.

Health Program - This includes vaccinations, parasite control, hoof care, exercise and housing. Your veterinarian should be able to help you set up a complete program of preventative medicine.

Breeding Program - Knowledge of sound management practices can help the mare owner select the stud or breeding farm that will have the best chance of settling his mare(s). It can also help the stud manager improve the reproductive efficiency of his operation.

BREEDING SYSTEMS

There are three types of breeding or mating systems, and each has certain advantages and disadvantages.

Pasture breeding is the most labor-efficient and least expensive system to use. The stallion is usually turned out with a group of mares in the early spring and taken out of the pasture in June or July. Since the breeding stock is generally not handled on a regular basis, the possibility of genital infections spreading undetected increases. Mares and stallions may also be exposed to a greater risk of injury when compared to the other systems. The number of mares should be limited to 45 or less if a good conception rate is to be obtained. Pregnancy rates, however, are usually quite good.

A hand mating system involves a greater investment of time, labor, and equipment than pasture breeding and may result in lower conception rates. The involvement of man in the breeding process (both mare and stallion are held during breeding) creates different stresses for horses, but may also give marginally fertile mares a better chance of conceiving. Under this system, animals can be more carefully observed so that detection of genital infections and cyclic problems in mares becomes easier. However, as long as the stallion and mare make sexual contact, the risk of spreading infection cannot be eliminated. The chances of injury to the stallion and mare are reduced. This system also limits the number of mares a stallion can breed in a season to approximately 70 for a mature stallion.

Artificial insemination (AI) is the most technically advanced breeding system. While it requires a substantial investment in equipment and labor, it allows a stallion to service many more mares per season. It is not unusual for a stallion to breed over 100 mares a season with AI. The reason this can be done is that semen is collected from a stallion, extended, and deposited in the mare. One ejaculate of a stallion can be split among 10 or more mares. Since the stallion and mare do not make sexual contact, the risk of infection and injuries is practically eliminated. The semen may also be treated with antibiotics prior to insemination.

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There are several disadvantages to AI that must be mentioned: (1) Some breed associations will not permit registration of foals that result from artificial matings. (2) Knowledgeable and intensive management is required to make it succeed.

PREPARING FOR BREEDING SEASON

The preparation of each mare for the breeding season should begin months ahead of time. The following items should be considered carefully:

Condition - Is the mare too fat or too thin? Fat mares have a very difficult time conceiving, and so do the very thin ones. The mare should be carrying enough weight so that you can just barely see where her ribs are. Just before the season begins, slowly increase the amount of feed, which will cause the mare to be gaining weight when she is due to be bred. This process is called flushing and is widely believed to improve the mare's chances of conceiving.

Mares in training - If a mare is being intensively trained for showing or racing, she may need to undergo a "let down" period. Many mares taken from the track or show ring just before breeding season will have a difficult time conceiving. A period of more than 60 days should be allotted so the mare's reproductive system can reestablish some regularity.

Reproductive problems - Barren mares are mares that did not conceive during the previous season. Some mares may not have conceived because of an infection. If this is the case, the infection should be treated and eliminated long before the next breeding season. Other mares may be windsuckers or have poor reproductive conformation. These mares should be sutured (Caslick's operation) by a veterinarian.

General health - Before sending your mare to be bred (or before you begin your breeding season at home), be sure she has been wormed regularly, has had her feet trimmed, and has been vaccinated. Many stud farms also require a recent negative Coggins Test (for EIA). A healthy mare has a better chance of conceiving.

Upon arrival at the breeding farm, the mare may be examined by a veterinarian. Some of the standard procedures are listed below.

Rectal exam - The veterinarian will palpate the mare's reproductive tract to ascertain its general

condition. Rectal palpation may also be used to determine optimum breeding time and as a test for pregnancy.

Speculum exam - This procedure allows the veterinarian to visually inspect the reproductive tract for its overall condition and for any lacerations.

Uterine or Cervical Culture - A culture is used to find out whether or not a mare carries an infection in the reproductive tract. A negative culture means that no pathogenic (harmful) organisms are present in the uterus.

Endometrical Biopsy - If a mare is a problem breeder and shows no infection after a culture is analyzed, a small piece of the lining of the uterus can be removed from the mare (a biopsy) and analyzed. Low grade infections and damage to the uterine lining can be detected from this test.

ESTROUS CYCLE AND TEASING

Mares are classified according to their reproductive activity as long-day seasonal polyestrous breeders. "Long-day seasonal" means that mares are generally receptive to a stallion only during the seasons where the days are long (i.e. spring and summer). During the fall and winter they will probably reject the stallion. This period of time is referred to as anestrus. It must be pointed out here that there is a great deal of variation among mares regarding this and almost all other aspects of their sexual cycles. Some mares may have normal cycles throughout the year, while others may cycle for a restricted period of the year. Mares may also demonstrate peculiar patterns during the fall, winter, and early spring.

Like other mammals, mares have a reproductive cycle that is called the estrous cycle. The entire cycle lasts an average of about 22 days, with a range of 18-25 days for most mares. There are only a few days out of the cycle when the mare will accept the stallion. This period of receptivity is called estrus or heat. When a mare demonstrates the behavioral signs of estrus she is said to be "in heat", "in season", or "in." Estrus lasts an average of 5-7 days with a range of 4-9 days for most mares. During the fall, winter, and early spring, the heat period may be longer, shorter, or nonexistent for a given mare.

The behavioral signs of estrus are detected through a process known as teasing. A stallion

(usually different from the breeding stallion) or a gelding injected with hormones is allowed to tease or court a mare. Most farms arrange to have a solid barrier between the "teaser" and the mare to avoid an accidental breeding and injuries to people and horses. The teaser can be turned loose in a pen that is surrounded by other pens containing mares and allowed to tease at will. Pen teasing is labor-efficient and effective providing a knowledgeable observer is present. Mares may also be teased at a solid board or panel at least 4 feet high or they can be run into a chute and teased. All of these methods are effective ways of detecting estrus in mares.

The characteristic behavioral patterns of estrous mares are listed below. Some mares may exhibit one or two of them while others may demonstrate all.

Desire for company - Just prior to estrus, a mare may eagerly seek the company of other horses or people. This is not a clear-cut sign and should not be construed as a definite indication of estrus.

Winking - When teased most estrous mares will contract the labia of the vulva, exposing the clitoris (located at the base of the vulva). This is not to be confused with normal contraction of the labia after urination. Estrous females will display a winking response with a greater frequency than normal, nonestrous mares.

Elevated tail, flexed pelvis, and frequent urination - These three signs often occur together, along with winking. The estrous mare will raise her tail straight up or to the side, flex the pelvis so that she assumes a sort of squatting position, and will urinate frequently and irregularly. Some or all of these responses will be displayed during teasing.

Acceptance of the stallion - While the other signs of estrus are often a good indication, true receptivity can only be demonstrated by a mare's willingness to stand still while being mounted. Since mares are so unpredictable, it is important to be alert at breeding time. Even though a mare may demonstrate all of the other signs of estrus, she could become violent when the stallion attempts to mount.

Mares that are not in heat are said to be diestrous ("out"). Violent reactions to teasing such as ears pinned, kicking, or squealing are indicative of a diestrous mare's reaction. Some mares, however, may just show indifference to the

teaser.

WHEN TO BREED

Age - Mares usually reach puberty at 12 to 15 months of age. They should not be bred until they are at least 24 months old so they will have a chance to grow and develop normally. Most people wait until a mare is at least three years old before having her bred.

Time of Year - The horse's natural breeding season usually begins around the middle of April. However, most breed registries set a birthdate of January 1 for competition purposes. This artificial birthdate has many mare owners trying to breed their mares in February and early March in order to get an early foal the next year. Many mares are still anestrus at this time of year, which poses a tough problem for most stud managers. The problem created by the artificial birthdate can be partially solved by using artificial light. By placing a 150-250 watt bulb in a mare's stall and increasing her exposure to light she may begin to cycle one to two months earlier the next season. The light program should begin in late October or November. The mare should receive 16 hours of light per day (daylight and artificial light combined). This light regimen should be maintained until the next season.

Foal heat - Most mares will exhibit a short period of estrus around 7-9 days after foaling. It may last from 3-5 days. The "foal heat" is characteristically less fertile than subsequent heat periods and a mare should not be bred at this time unless all of the following criteria are met. (1) The mare had no trouble foaling. (2) The mare passed the afterbirth within two hours after foaling. (3) A veterinarian examines the mare and concludes that there was no damage to the reproductive tract due to parturition and that the uterus is returning to its normal size and tone.

PREPARATION FOR BREEDING

Equipment

Buckets - The stallion and the mare should each have a separate wash bucket and rinse bucket. The buckets may be stainless steel, plastic, rubber, or galvanized. For maximum sanitation, a kitchen-size, plastic garbage bag should be used as a liner for the buckets. These can be thrown away after each use.

Hot water - Some source of hot water should be

available. If it cannot be obtained from the tap, an immersible heater can do the job. Be careful not to touch the water while the heater is plugged in.

Soap - A mild soap or detergent such as Ivory (bar soap or liquid), Nolvasan or PhisoHex does an excellent job of cleaning without irritating the animal's skin.

Washing and drying material - Roll cotton, cheese cloth, or soft paper towels are best. The cotton need not be sterilized. The material must be soft, absorbent, and disposable.

Tail wrap - Ace bandages, gauze, or track bandages should be used to wrap the mare's tail. The tail wrap stays on best if it is secured with adhesive tape. A clean tail wrap should be used for each breeding.

Restraints - Breeding hobbles and a nose twitch may be used together or individually to restrain the mare to be bred. If hobbles are used, the mare should be allowed to walk around before breeding so she can become accustomed to them.

TIME AND FREQUENCY OF SERVICES

Typically, the mare in season is bred every other day during the heat period. The first mating or service takes place on the second day. A mare would be covered three times during the normal 5-6 day heat period with this system. Since ovulation (release of the egg from the ovary) can occur any time during the heat period, multiple matings are necessary to insure viable sperm are present at the time of ovulation. If the stallion is not being used heavily, mares may be bred every 36 or even every 24 hours. This procedure is followed for hand mating and artificial insemination systems.

Under more intensive breeding operations, the time of ovulation is determined more precisely by palpation of the follicle on the ovary. In this way, the number of inseminations or matings can be minimized and the number of mares bred to a particular stallion increased. Ovarian palpation should be done only by an experienced person or veterinarian.

RECORDS AND CONTRACTS

Complete, accurate records are an essential part of any breeding operation. Individual records should be kept on each mare. These records

should include 1) the mare's name, 2) age, 3) status (whether the mare is barren, maiden, or nursing a foal), and 4) any special considerations to be made in handling her.

The results of teasing, visits by the veterinarian, and the breeding dates should all be included on the record sheet. Other information recorded includes vaccinations, wormings, and farrier work.

A good set of records is probably the best management tool used for determining progress and pinpointing problems in the breeding operation.

If you plan to breed mares owned by other people (outside mares) to your stallion you should have a contract drawn up specifying the responsibilities of both parties. The contract should be clearly worded so that everyone involved can understand it. Both parties should insist on a written contract.

The basic information included in the contract is the mare's name and age, the mare owner's name and address, the name of the stallion to which a mare is booked, and the breeding fee. Guarantees of results of the breeding should also be included. The most common guarantees are for a live foal or a return-in-season. A live foal guarantee means that the mare must produce a live foal before all or part of the payment is due. Return-in-season means that the breeding fee is due at the end of the season regardless of the results. There are other guarantees that fall between these two.

The terms of payment and the charges for care and feeding of the outside mare should also be included in the contract. Other subjects to be clarified are liabilities for veterinary services and any other points of possible contention between the mare owner and stud manager.

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