

The successful breeding of Friesian horses not only depends on your choice of the right stallion and expert counseling, but also on the mare. In this article we will talk about the fertility of your mare. To get your mare in foal in a timely manner depends on a number of factors. Horses have a seasonally polyestrous reproductive cycle. This means that the mare will have several reproductive cycles during specific times of the year, normally from approximately March through September.

The Fertility of Your Mare

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The most ideal productive period of a horse starts when the days are getting longer, normally starting in the spring and ending in late summer (from approximately March through September). However, if the circumstances are just right, a mare can also get in heat during the rest of the year. But as a rule, the factors of light (the increase of day time), climate of the location (chilly spring weather can considerably slow down the growth of the follicles), and "teasing" (heat detection, using the mare's response to a stallion) will determine if the mare gets in heat (**in estrus**). These three essential factors will send the necessary signals to the mare's brain cells and the ovaries will get their cue to become active.

Teasing the Mare

Sometimes we can get an early start by blanketing the mare and leaving the lights on in the stall for a longer duration. One of the best methods to detect heat, and one that works very well with Friesians, is **teasing**. Teasing will get your mare in estrus a little easier and it will improve the chance of a successful ovulation. Sometimes I get the idea that some breeders think that all a mare needs to get in heat is the vet, who palpates her (internal examination). Of course, that's not true. Teasing is essential in a successful fertility procedure. People often use a pony stallion for this purpose. However, it is important to know if and when the mare shows the correct signs of her estrus.

Behavior associated with a mare that is not in heat (**diestrus**) includes kicking, biting, striking, putting the ears back and overall hostile attitude toward the stallion. Normal response of a mare showing signs of estrus to a teaser stallion includes obvious interest in the stallion, vulval winking, squatting, lifting of the tail and frequent urination. The cloudier the urine looks, the closer the time of ovulation. A mare's normal estrus cycle is five to seven days in length.

Normal Cycle

The normal cycling period of the mare during the breeding season is approximately three weeks. This means that the period of diestrus (when the mare is not receptive to the stallion) lasts about fifteen to sixteen days, followed by a period of estrus (heat) of about six days. During a normal winter, a mare usually has inactive ovaries. We call this period the **anestrus** phase. In this phase it is useless to treat the mare with an estrus-inducing product, because the normal activity of the ovaries is absent, contrary to the diestrus phase, when this treatment can be very effective.

Let's imagine we are dealing with a mare that just gave birth. Normally, in warmbloods, the first estrus occurs about nine days after the birth of the foal. However, the Friesian horse needs a little bit more time, the first estrus occurring about eleven to fourteen days after **parturition** (the birth of the foal).

This first foal estrus is often easy to detect in the mare because of the diarrhea of the foal at that period of time. In addition to the hormones from the mare that pass from mare to foal via the milk, an infection with worms is the main cause of this diarrhea. The first worming of the foal is very important at this time. This worm infection can also occur via the stall - a clean stall is always, therefore, very important. Picking up manure in the stall and/or paddock is of the utmost importance to prevent reinfection via the eggs that are expelled with the manure, and via the larvae that develop from those eggs. Give the foal a small dose of a mild paste wormer. Be aware that there are wormers that are an absolute no for foals because they can be fatal. Ask your veterinarian for advice.

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Fertility of Your Mare, Continued...

Foal Estrus

In the past, breeders were often advised to skip the foal estrus of the mare and start their breeding activity at the second estrus (about thirty days after parturition). Nevertheless, the foal estrus is very popular, maybe because ovulation almost always occurs, regardless of the external symptoms of the mare. Normal estrus may take a long time to complete, especially with Friesians, and quite often ends with no actual ovulation. Some mares won't reach estrus at all after the foal estrus as long as they are nursing the foal.

Some important conditions for the use of the foal estrus are:

- a birth without complications,
- that the complete afterbirth was expelled speedily (within two hours),
- and that artificial insemination or live coverage won't take place within a time period of nine days after foaling.

The age of the mare and the number of foals she gave birth to must also be taken into consideration in the decision to use the foal estrus for insemination/live coverage. An older mare (more than twelve years of age) that gave birth to several foals will need more time before her uterus has recovered from the parturition.

The Use of Estrus-Inducing Hormone Injections

In general we can say that the chance to get pregnant by using the foal estrus method is slightly larger than normal. However, the chance to abort is also slightly larger than normal. In other words, when you use the foal estrus method, check your mare a second time later in her pregnancy to make sure she didn't abort. Another option is the use of heat inducing drugs three weeks after the birth of the foal. A mare with a normal cycle will show a nice "corpus luteum" (yellow body) on the ovaries at that time. The use of the estrus inducing injections will shrivel up this corpus luteum and it will disappear. After a few days the mare will start her heat symptoms. Often the ovulation will occur about a week after the injection. Verification by your veterinarian is important in this process.

Yet another method is to wait until the second estrus after parturition. In that case the mare will give birth to her new foal in the same period as her current foal, provided she becomes pregnant immediately.

Taking an Ultrasound

By performing a rectal palpitation of the uterus and taking an ultrasound, the veterinarian can determine the ideal point in time to inseminate or breed. Adding an ultrasound to the palpitation will provide much more information regarding the uterus and the ovaries. In addition to an ultrasound of the ovaries with the follicles (size, form and number) it is of the utmost important to make an ultrasound of the uterus, especially

when dealing with a Friesian horse.

Research shows that the Friesian breed has a high risk of developing uterine fluid during estrus. The amount of fluid and its quality determines greatly if the sperm, which enters the uterus during insemination or live coverage, can survive or not. In other words, with the help of an ultrasound your veterinarian will not only be able to advise you about the exact time of insemination but also about the exact condition of the uterus. Ideally, the ultrasound of the uterus should have the appearance of an orange slice or wagon wheel, with no fluid present. If fluid is present and color of the fluid is gray, or muddy, it often means that the uterus is infected and the chance of a successful pregnancy is greatly diminished.

Uterine Mucus Test

In case of doubt about the nature and the amount of the fluid in the uterus, your veterinarian will often take a uterine mucus specimen for a bacterial culture to access the presence of harmful cells. Based on the outcome of this test he will be able to determine if, and which, infectious microorganisms are present. In general it is recommended to do a uterine mucus test when:

- A mare didn't get pregnant last year.
- A mare has vaginal discharge
- A mare isn't in foal after three estrus cycles.

This test should ideally be done during the beginning of the estrus. The lab can determine if the uterus has a bacterial infection and which bacteria are present. On special request, a test for fungal and/or yeast infection can be taken as well. An additional advantage is that, through a sensitivity test (antibiogram), the most effective antibiotics can be determined. If the test is taken at the beginning of the estrus, it is most likely that the treatment can even start during that same estrus cycle. During the next estrus period, a new test will be taken to check if the treatment was successful.

My advice: If your mare was inseminated more than once without results, your mare should be examined more thoroughly. As I said before, a good ultrasound gives a lot of information.

Tissue Examination

Another option is a biopsy of a small piece of tissue from the uterus. In particular, this biopsy will give a prognosis of the quality of the lining of the uterus. Yet another option, which is gaining in popularity, is performing a **hysteroscopy** (examining the inside of the uterus). With the help of an endoscope, a device with a light attached, used to look inside a body cavity or organ, a vet can examine the uterus, the mucus membranes and/or the entrance of the Fallopian tubes.

An endoscopic procedure can also remove large **cysts** (clogged

glandular (ducts) immediately. Another advantage of an endoscopy of the uterus is the possibility to perform the insemination aimed specifically towards the entrance of the Fallopian tube - for instance, in the case of very expensive frozen sperm. In any case, the main conditions for a successful pregnancy are:

- a clean mare,
- an optimal heat cycle.

Ovulation

The preferred time of insemination is shortly before ovulation. A normal ovulation occurs at about two-thirds of the estrus, typically on day four or five, but exceptions are the rule. It can happen rather quickly, depending on the weather (outside temperature), or it may take quite a while before the follicle with the embedded egg cell (ovum) "springs." A normal follicle on the ovary often ovulates when it is four to five centimeter, but Friesian mares can develop follicles with a diameter of 5.5 centimeters or more - and not only that, they often fail to ovulate at all.

As I mentioned before, the temperature of the locale and the teasing are important factors for the growth and ovulation of

the follicles. People often start too early with the insemination, and consequently will have to inseminate two or three more times - every other day. This only increases the chance of infection of the uterus. Some mares develop a severe allergic reaction to the sperm diluent. The more inseminations, the bigger the chance of problems.

Administration

It is important to keep comprehensive records of each mare during the breeding season. **The Mare Fertility Report Card** holds the date, duration and intensity of each heat cycle, follicle size, location of the follicle(s), treatments, medication, ultrasounds, and so on. Your veterinarian can give you all the necessary information.

A great advantage of the mare fertility report card is that it gives you a quick, first class summary of the ovulation (for instance, at what follicle size the ovulation occurs) and if the mare has a tendency to develop one or more follicles which means a potential for twins). A well known saying is: Once a twin (embryo), more often a twin (pregnancy) of the (same) mare.

Mare fertility report card

Name mare	Owner
Date of birth	Address
Registration number	City
Chip number	Telephone number
Color	e-mail address
Markings	
Maiden mare / open / foal	Stallion
Course of parturition	Breeding station
Afterbirth	Telephone

date	teasing	cervix	uterus	Left ovary	Right ovary	Details / medication

