From the FHANA Health Committee:

So You Want to Breed Your Friesian Mare

If there is one thing that helps a Friesian breeder get through the long months of winter, it is the thought of spring coming and along with it, a new breeding season. This is the time to begin the process of selecting a stallion for your treasured mare and then starting the process of getting this mare in foal. Stallion selection is a very important decision and, while not covered in this article, should be considered carefully and with advice from reputable sources (FHANA webinar for example).

Breeding a mare successfully requires teamwork between the mare owner and an equine veterinarian. Choose a veterinarian that you feel has the knowledge, skill level, necessary equipment and medications to get the job done. It is important to understand the costs involved, from the first ultrasound to that last pregnancy check, so request a list of the fees from the veterinary clinic that you have selected ahead of time. Understand that there may be some additional charges that may spring up from unanticipated factors (an "after hours fee" for breeding a mare outside of normal business hours) and allow some extra dollars in your budget to account for these. If your veterinarian has a facility that can house your mare during her breeding cycle, this might be a good option for you and your mare. Oftentimes the cost of daily board is less than the cost of multiple trip charges, not to mention the convenience to you and your veterinarian of having the mare readily at hand for any procedures that the veterinarian will need to do. Putting pencil to paper ahead of time and understanding the costs involved in breeding your mare will prevent misunderstandings as you move through this process.

If your mare has been bred successfully before, chances are there are some breeding records that can provide valuable information about your mare's reproductive history. Having these records available will help you and your veterinarian make decisions as to how your mare cycles, when to breed your mare, what drug protocol works for her and define any other procedures that may need to be considered to get your mare in foal and keep her that way. Mares often tend to repeat things like cycle length, follicle size and response to drug therapy, so knowing these things ahead of time can pave the way to continued success.

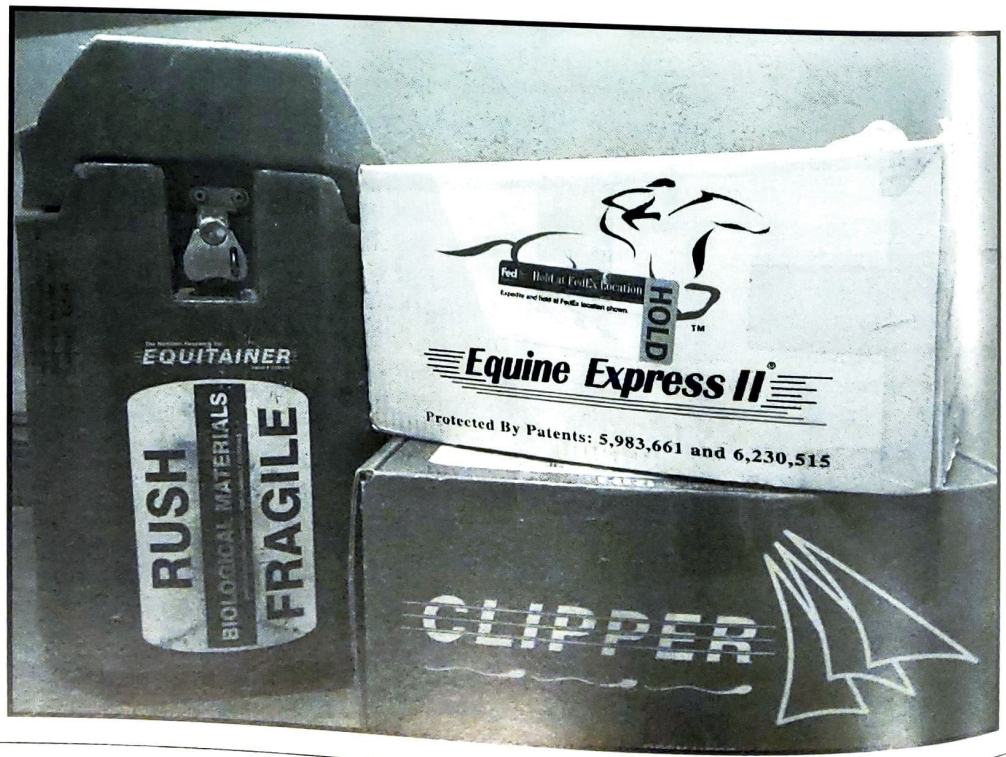
If your mare is currently open (not in foal), the next decision you may need to make is when to breed your mare, as this determines when your foal will be born. Fortunately, in the Friesian breed, having those very early foals (in January and February) is not necessarily an advantage, so you are able to breed a bit later in the breeding season. Breeding your mare as day length increases and the ambient temperatures are becoming more mild allows you to work with the mare's natural physiologic breeding season and can help improve your chance of success. You should also consider the climate where you live, as this can factor not only in the mare's fertility (fertility is highest in what is considered to be the optimal breeding season in your part of the country) but can also play a part in the foal's health when it is born the following year. Having a foal born in either very cold weather or very hot weather can present additional challenges that may be avoided by breeding your mare at the appropriate time.

So, you are now ready for that first visit by your veterinarian. If your mare is open and, especially if she has been bred unsuccessfully the previous year, a uterine culture and cytology may be suggested along with the ultrasound examination. The uterine culture and cytology provide information about the uterine environment – the presence or absence of inflammation and/or infection, issues that may prevent conception or pregnancy maintenance. Depending on the results of the culture and cytology, treatment of the mare's uterus may be in order before the mare can be bred or, at times, it can even be done during the same cycle in which she is to be bred.

If your mare was bred unsuccessfully the previous year, or conceived but lost the pregnancy, a uterine biopsy can be considered, especially if other factors have been successfully ruled out (uterine infection/inflammation, progesterone levels, etc.). This involves physically removing a small portion of the uterine lining (endometrium) for an in depth look at the uterus microscopically (histopathologic examination). This test, while more costly than a culture, can provide more definitive information about the uterus and potentially provide insight to the possible causes of infertility and/or early pregnancy loss. This information can enable your veterinarian to provide the best prognosis as to your mare's ability to conceive and maintain her pregnancy and a treatment plan to achieve that goal.

The ultrasound examination will help to determine where your mare might be in her cycle and what might need to be done to get her ready to breed. If she is not in heat but has been cycling on her own, then the use of a drug called prostaglandin may be suggested to bring her into heat (by lysing the corpus luteum, aka "CL", from the previous heat cycle) in a predictable way so that she can be bred to coincide with semen shipping schedules. If it is early in the season when heat cycles can be more erratic, then use of an oral drug called altrenogest (more commonly known by the trade name of "Regu-Mate"©) can be used to encourage a more normal cycle by your mare. It is usually given for 10-14 consecutive days (prostaglandin may also be given on the last day) and often times the mare will come into heat 5-7 days after the last day of treatment. It can be difficult to determine the right protocol for your mare, but the goal is to bring your mare into a heat cycle in a time frame and in good reproductive health such that the next step can be taken – the insemination of your mare.

The vast majority of Friesian mares in North America are bred by artificial insemination and most often with cooled shipped semen. If you have chosen a stallion whose semen will be shipped to the mare, then the semen will have to be ordered at the appropriate time so that it can arrive at the correct time and location so she can be inseminated. It is important that you have all of the correct semen ordering information ahead of time such that the semen can be ordered when it is determined that your mare is ready. You will need to know the collection and shipping days, deadlines for ordering the semen and all contact information for the person who takes the semen orders. This should all be on your mare's breeding record as well as provided to your veterinarian in a written format. Give the stallion managers as much notice as possible as to when you might need semen for your mare as, at times, demand can be high and you don't want to be at the bottom of the list and run the risk of not getting your semen shipment when you most need it. Be aware of the holidays in which Fed Ex/UPS do not operate and work around them. It is also important that you know of any "black out" dates for the stallion that you have



SHIPPING CONTAINERS

Examples of semen shipping containers. Be aware of the holidays in which Fed Ex/UPS do not operate and work around them..

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chosen, dates when the stallion is unavailable for collection, and bring this to your veterinarian's attention as well. Semen can also be flown via a number of different airlines for same day delivery (termed "counter-to-counter"). Determine ahead of time as to whether this is a viable option for you in your area and whether the stallion facility is set up to send semen this way. Be aware that this option is often more expensive, but can seem quite economical if it means that your mare can be bred on her current cycle and all of the hard work, effort and dollars spent getting her to that point will not be wasted.

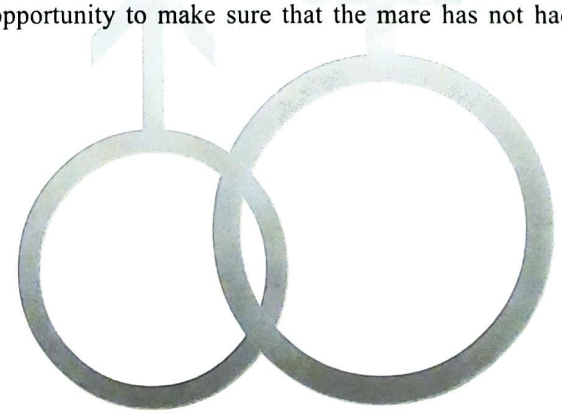
Deciding when to order semen is challenging. You want to avoid having to get multiple shipments because of the cost, and because it is better for your mare not to inseminate her multiple times. Thus, you do not want to order too early. On the other hand, if you wait too long, your mare could ovulate before the semen arrives.

The best we can do is to stack the cards in our favor by looking at previous breeding records to see what the mare has done in the past, pay close attention to what the mare is telling us during her breeding cycle and hope that everything falls into place.

The goal of artificial insemination is to order the semen and breed the mare as close to and prior to the time that she ovulates such that the sperm is there and ready to fertilize the egg. In a perfect world, you will receive two doses of semen in your shipment and the mare will ovulate right between the two visits by your veterinarian to inseminate her. While sperm cells can remain viable in the mare's uterus reliably for 36-48 hours, with reports of up to 5-7 days, it is best to have the timing of ovulation be as quick as possible after that first insemination. Drug protocols are available to help induce your mare to ovulate, most often using either one and or both of two injectable products: HCG (Human Chorionic Gonadotropin, marketed currently as Chorulon©) or Deslorelin (marketed currently as Sucromate©). These products stimulate the mare to ovulate in a reliable way, allowing her to be bred on schedule and with just one semen shipment, saving both time and money (one shipment vs. multiple shipments) and multiple breedings of your mare within one cycle (again, something that can be detrimental to your mare). Which product your veterinarian chooses to use is often based on timing, whether it is being dispensed to the owner to give, comfort level, expense, first breeding or rebreeding within in one breeding season and the mare's reproductive history. One of the hardest decisions to make with either of these two drugs is when to give them. Ultrasound examination of the follicle and the uterus as the mare moves through her heat cycle is invaluable to your veterinarian to determine when to induce ovulation and breed the mare. Follicle size, wall thickening, softness and shape change as the follicle matures are all parameters used to assess follicular development. The uterine appearance can also provide information, going from mild edema (fluid that accumulates in the wall of the uterus in response to estrogen – the hormone produced by the developing follicle and responsible for the behavior we observe when a mare is in heat) to heavy edema and again to lesser edema as she prepares to ovulate. The mare's behavior, if she shows heat, can also be used to support the ultrasound findings. Friesian mares, as a general rule, tend to build a larger dominant follicle than many of their light breed cousins, so often times these drugs are not given (and semen is not ordered) until the follicle has reached at least 40-45 mm in size. There is no hard and fast rule to follow to guarantee that the mare will ovulate when you want her to. The best we can do is to stack the cards in our favor by looking at previous breeding records to see what the mare has done in the past, pay close attention to what the mare is telling us during her breeding cycle and hope that everything falls into place.

When the semen shipment arrives, do not open the container but place it in a dry cool place. Contact your veterinarian's office to let them know that the shipment has arrived and hopefully get an ETA (estimated time of arrival) on the veterinarian who is to breed your mare. Ideally, the veterinarian should arrive with a microscope such that the semen can be evaluated prior to being inseminated into the mare. If the semen is found to be of poor quality, it is often times best to not use it and to notify the stallion manager immediately to resolve the situation. Fortunately, within the Friesian breed, poor semen quality of cooled shipped semen is often not an issue as the majority of the approved stallions are very well managed. Prior to inseminating your mare, your veterinarian will ultrasound her to evaluate the follicle for signs of ovulation. If your mare has not yet ovulated and has not been given a drug yet to induce ovulation, you can consider doing so at this time if it appears that the follicle is progressing more slowly than expected. If it is determined that the follicle is quite close to ovulating, you can "sit tight" and let her ovulate on her own.

In order to leave nothing to chance, it is recommended that your veterinarian ultrasound the mare the following day after breeding to be sure that she has ovulated once she has been bred. There are those mares in the population that don't ovulate, despite appropriate breeding protocols, and if they don't ovulate, they cannot get pregnant. It's an important piece of information to have. This additional ultrasound also provides an opportunity to make sure that the mare has not had an



adverse reaction to the breeding, the most common being the accumulation of fluid in the uterus, which will need attention by your veterinarian if she is to get in foal. You and your veterinarian should decide upon any post-breeding treatments based on what may have occurred during the breeding cycle and your mare's past reproductive history.

So, now your mare has been bred and has ovulated successfully, without any unforeseen complication. What is the next step? An appointment should be set up with your veterinarian 14-16 days post ovulation to check her for pregnancy. If she is in foal, you can talk to your veterinarian about any additional procedures that may need to be done (such as a Caslick's procedure or progesterone levels) to help insure that she maintains this pregnancy. If all appears to be completely normal, another ultrasound should be schedule for sometime between 21 and 30 days post ovulation to check for normal development of and a heartbeat on the fetus. Additional ultrasounds or palpations should also be discussed, with the number and timing of these exams dependent upon the mare's reproductive history. Mares who have reabsorbed a pregnancy or have aborted should be monitored more carefully, via ultrasound examination, to result in a successful pregnancy.

Ultrasound at 14 days pregnant! Photo courtesy Fenway Foundation for Friesian Horses.

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The Breeding Contract - Reading the Fine Print!

When choosing the stallion for your mare, cost may be one factor to consider. The stud fee is easily ascertained, but there is one other cost item that should not be overlooked in terms of budgeting, and that is the additional cost associated with actually obtaining shipments of semen.

There is a great deal of variation in how this is handled by different stallion managers. Typically, there is a fee for collecting and shipping the semen, and this sum is charged for each shipment you request. The amount of this fee varies. If you require same day service via the airlines, this usually costs more than an overnight Federal Express delivery, and some may charge more for Saturday delivery.

There is also variation with regard to returning the shipping containers. Some stallion managers use disposable containers that need not be returned. However, if Equitainers are used, you will be required to return these in short order. This might be at your additional expense, or, the cost of the return shipment might have been included in the collection and shipping fee already paid, in which case a pre-paid return label will be provided to you.

All of these details will be spelled out in the breeding contract, just be sure to read them to avoid being surprised by the charges on your credit card statement.

SAMPLE MARE BREEDING RECORD

2014

EQUINE

OFFICE:
EMERGENGY:

MARE: Pearl
Age: 12

Stallion: Omar
Collections M-W-F only
Arrived: _____
Departed: _____

Owner: Doe (Last) Jane (First)

Address: _____

Phone: _____

Insured: Yes ____ **No** ____

hx: _____

MAIDEN: YES (NO) **LAST FOAL** 4/27/14 **LAST CULTURE** 5/20/14 E. coli **BIOPSY** N/A

TEASING & BREEDING RECORD: O = No Heat + = Heat \ = Questionable B = Bred P = Pregnant RX = Treated

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
JAN																															
FEB																															
MAR																															
APRIL																											F				
MAY																									Rx	Rx	Rx	Rx	B	B	
JUNE																															
JULY																															
AUG																															
SEPT																															

Date	Exam	Cervix	LO	RO	Uterus	Comments	Recheck
5/20						culture & cytology	
5/25			NSS	3.0	good tone no edema	treat with PCN	
5/28			3.0	4.2	mod edema	Order semen & give deslorelin	
5/29		2+		4.5	min edema	Bred with 45 cc's semen 80% motility	
5/30		1+		4.3 irreg	no edema	Bred with 45cc's semen	14-16 days
6/14						Pregnant/right horn @ 30 days	
6/29						Pregnancy confirmed @ 45 days	
7/13						Pregnancy confirmed	

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If the first ultrasound post-breeding finds your mare to be open, it may not be immediately obvious as to why she did not settle. Remember that it is not uncommon for it to take 2 or more cycles to get a mare pregnant, so you should not give up. If you and your veterinarian are not "picking up on anything" to account for her being open, then you may choose to try again without any further diagnostics. It is wise, at this point, to look back and see what, if anything, could be improved upon and take the appropriate steps necessary to be successful on the next attempt. It may mean more intensive management of your mare that can include things like a post-breeding ultrasound, uterine lavages (using sterile fluid to "rinse" the uterus, removing fluid and debris from the surface of the uterus), uterine infusions (the placing of antibiotics, for example, into the uterus to be absorbed), the use of an oxytocin protocol post-breeding (to stimulate small uterine contractions that help the mare to eliminate fluid from her uterus), and uterine cultures, cytology and biopsies. It's a long list, and it can be difficult to determine what is appropriate for each mare in each individual situation. Most importantly, don't be discouraged if your mare does not settle on the first attempt. Talk openly with your veterinarian such that a plan can be put together for your mare with the end result being that first look at your foal on the ultrasound screen at only just two weeks after conception. Pretty amazing!!

As a final note, but a very important one, be sure that you are keeping good breeding records for your mare. Your veterinarian should be making notes after each visit, describing ultrasound findings, medications given and procedures that were performed. Often times, the mare's record is kept in close proximity to the mare, especially important when using a veterinary practice that employs more than one veterinarian. It is entirely possible that the same doctor may not be seeing your mare each time, so having that record available keeps everyone "on the same page". A mare's breeding record is also a part of her medical record, so your veterinarian may choose to keep their own set of breeding records on your mare to complete your mare's medical file. Whether you choose to keep your own breeding records at your barn or get a copy of the record that your veterinarian generates, this is an important part of your mare's reproductive history and should be kept where you and your veterinarian will have ready access. It is important to keep in mind that not all mares have "read the textbook" on equine reproduction and they instead choose to write their own story and make their own rules. So, by providing a written history of what has worked, and not worked, for your mare over successive breeding seasons helps all of us to do a better job of getting these mares in foal.