

Transported Semen for the Small Breeder

Part 2 The Mare Side

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Why Bother?

This article will give one breeders view of the pitfalls and benefits of using transported semen (TS) to breed your own mares. It is not an extensive article about all aspects of transporting semen. This article assumes the reader is familiar with the basic concepts of AI and has some information on the specific requirements for the receipt of transported semen.

We are a small breeder of Crabbet, Maynesboro and old Kellogg Arabians. We greeted the news that transported semen would be allowed for purebreds with cries of relief since it would enable us to breed our own mares to CMK stallions far away from us and we could offer our stallions to mare owners who could not send their mares to our farm. Transported semen (TS) offers a way to spread our limited gene pool across the country. In the previous article I described the pitfalls and benefits of setting up a transported semen program from the stallion owners point of view. In this installment we'll take a look at the potential problems and benefits for the mare owner expecting to receive transported semen.

Transporting equine semen is not yet at the commercial stage. Equine semen may or may not survive transport well. Individual stallions may have varying sensitivity to semen extenders, antibiotics and the procedures required to produce good shippable semen. The mare owner contemplating a mating to be performed via TS should have the answers to four major items before signing a breeding contract.

1. Is the mare a good candidate for transported semen?
- 2.
- 3.
4. Am I prepared to handle the additional veterinary care required for the use of TS?
- 5.
- 6.
7. Are my facilities adequate for the use of TS?
- 8.
- 9.
10. Am I comfortable with the stallion owner and do they have experience in providing transported semen?
- 11.
- 12.

This article will cover each of these four points in more detail.

Is the mare a good candidate for TS?

A good candidate for receipt of TS is a young mare with a known foaling history, easily detectable heat cycles and without a history of breeding problems. She should be easily palpated with a minimum of restraint. The mare must be cycling regularly. Mares that are open may require additional light to get them to cycle early in the year. Old mares and those with a history of breeding problems are not good candidates. Some stallion owners will not accept maiden mares for receipt of TS because of the problems of detecting heat. Other stallion owners will accept such mares but the mare owner must understand that it is more difficult to settle a maiden mare with TS and there may be additional expenses.

The normal procedures you take to ensure that the mare is ready to be bred using live cover are the same ones to take for TS. If you routinely do a uterine culture then continue that practice. Some stallion owners will require a clean culture before sending you semen. The mare should be current on all shots and have been recently dewormed. Her teats should be checked and floated if necessary.

Am I prepared to handle the additional veterinary care required for the use of TS?

When you are breeding via TS the mare owner is responsible for determining the proper time to breed. You must either have a teaser stallion on the premises or be willing to accept the added expense of frequent rectal palpation to determine the mares reproductive status. If you do not have a veterinarian skilled in equine reproduction then don't try to breed using transported semen.

The semen must generally be ordered 24-48 hours in advance of when you need it. Thus the veterinarian must guess when the mare will ovulate and arrange to have the semen in the mare when or just before she ovulates. Good records are an invaluable aid in this process. For example, we have several mares which we have bred using AI and/or transported semen. Through regular, consistent palpations and careful record keeping over several cycles, I now know that mare A will ovulate a follicle of roughly 30mm while mare B won't ovulate until the follicle reaches 55mm or larger. I also have information on how long it takes for each mare to go from a small follicle to ovulation. This extensive record keeping was done through the use of three times a week rectal palpations over several cycles.

Mare owners who are willing to take advantage of the modern hormonal methods of controlling the reproductive cycle will, in general, be more successful with TS. To continue our example, we've bred two mares from a single collection by using lualyse to cause them to come into heat at the same time, inseminating the mares with a split ejaculate and using human chorionic gonadotropin (HCG) to cause them to ovulate. We got two pregnancies out of one collection fee. Your own veterinarian may suggest using Regumate™ or other hormones to control your mares' cycles. If you choose not to use a hormonal method to bring the mare into heat I would still strongly suggest considering using HCG to induce ovulation once the mare has been inseminated. Each shipment of semen represents a major investment in time and money. It is unlikely that you will be able to receive more than one shipment per heat cycle because of shipping time. Thus if you order semen and it arrives and the mare has not yet ovulated but is close, one shot may turn a potential lost cycle into a viable pregnancy. When the semen arrives be sure you go ahead and inseminate the mare. Even if, on palpation, it is evident that the mare has already ovulated you may still get a pregnancy. You've already spent the money for the collection and shipment and there are numerous cases of mares being inseminated after ovulation who got in foal. Semen capacitates in the container during shipment so if the ovum is still viable a sperm can fertilize it as soon as it can find it.

If the mare is foaling this year then you should have your breeding contract signed and all fees paid well before her due date. This is especially important if you are planning to breed on the foal heat. Most stallion owners will require the payment of all fees up front when shipping semen. In addition to the stud fee the mare owner should expect to pay for collection, preparation and shipment fees for each shipment of transported semen. These fees will vary but the mare owner should be aware that a stallion owner has a significant investment in offering the service. Typical fees for preparation of a single shipment when only one mare receives the semen will be from \$200 to \$300. The mare owner may also be required to provide a refundable deposit for the safe return of the shipping container.

Once the mare is bred the stallion owner may require early ultrasound examinations. Such early exams can help the stallion owner schedule mares which did not conceive for priority shipments on their next cycle. Remember that due to scheduling difficulties the stallion owner may not be able to ship you semen as requested. In that case your best recourse is to shorten the mares' cycle artificially and rebreed. The stallion owner should give your mare priority on this next cycle. Such arrangements should be discussed before breeding and spelled out in the breeding contract.

Are my facilities adequate for the use of TS?

Perhaps the most important facility is either a well-built palpation chute or a mare trained to accept rectal palpation with little or no restraint. The mare which requires tranquilization to be palpated is not the one to breed using TS. Other facilities required are the availability of a teaser stallion and a veterinarian willing and able to assist in the breeding process. Mare owners who are not on a regular Federal Express delivery area or are far away from a major airport should consider how long a shipment will be in transit before deciding to use TS. The stallion owner should provide you with a schedule of relative fertility for the individual stallions' semen when packaged for shipment. Some stallions' semen is viable for 48 hours or more while others must be used within 24 hours. Factor in any the time required to collection, packaging and shipment and try to leave yourself several hours leeway. You may be required to drive to the airport to pick up a counter to counter shipment if one of the major delivery services will not deliver next day to your location. Currently only Federal Express and the US Postal Service will accept semen shipments. Most airlines will also accept fresh cooled semen shipments but may refuse shipments of frozen semen.

Am I comfortable with the stallion owner and do they have experience in providing transported semen?

The best care and experience on the mare end will be worthless if the stallion owner does not ship viable semen. The mare owner should request copies of all test results on the stallions' semen. Stallion owners who have not tested the viability of their stallions semen to withstand the collection and packaging process are wasting your money. If the stallion owner refuses to provide such results then find another stallion. You should not be paying for testing the stallions semen for shipment. As a guideline, the industry average is two shipments per pregnancy. That is averaged over the whole US and all breeds. Arabians have been experiencing a lower success rate probably due in part to the newness of the procedures.

Another major factor is the experience of the stallion owner. Have they attended an AI technicians class? Do they have a skilled reproduction veterinarian available? Who actually performs the collection and shipment procedures? Stallion owners will frequently choose to have a veterinarian perform the collection and processing procedures. While this increases the expense for the mare owner it provides additional security as well. With a skilled veterinarian on the packaging end the mare owner is assured of proper procedures. If, for some reason, the stallion does not produce a good ejaculate the collecting veterinarian will know and can wait and collect another sample in a few hours. You should expect to pay for this service but in the long run it can save you money. We have had collections where the semen was contaminated by dirt because the stallion entered the AV then withdrew and reentered before ejaculating. This semen will not ship well. In our case we waited and collected the stallion again in an hour resulting in a good clean collection that was suitable for shipping.

Some farms will also package part of the semen and retain it at the farm. If you suspect that you did not receive good semen then both samples can be checked. If the retained sample is OK then the problem is most likely either in shipping or in the procedures used to test the semen.

The actual insemination must be done by a skilled veterinarian or certified AI technician. This description is meant to serve as a guide. Your own veterinarian may vary these procedures somewhat.

When the veterinarian arrives you should take the container to the barn or palpation chute. Do not open the container with the semen until the mare is ready to be inseminated. You should verify that the required paperwork accompanies the semen. The registry papers must be properly endorsed or the resulting foal cannot be registered.

The mare should be carefully washed and disinfected. Her tail should be wrapped and the entire vulva area washed to provide a sterile field. Any contamination by bacteria or water can kill the sperm. Contamination can also cause uterine infections and early embryonic loss so cleanliness is essential. The pipette and syringe should be at the same temperature as the cooled semen. If you are unsure of the temperature consult with the stallion owner. Most farms will provide a handbook or sheet of insemination directions. Most syringes will work but you must keep in mind that most of them are toxic to sperm. The best rule is never draw up the semen until you are ready to inseminate the mare. Light will also kill the sperm as will any extreme temperature changes.

Using a sterile syringe carefully draw up the entire insemination dose. Do not warm the semen first, the mare is the best warmer for cooled semen. If you are breeding with frozen semen then it must be thawed following the directions before insemination. The veterinarian will insert the hand into the vagina using a sterile glove with the index finger over the end of the insemination pipette. The index finger is gently inserted into the cervix and then the pipette can be run under the finger into the body of the uterus. Care should be taken not to tear or injure the cervix and the pipette should not be rubbing the side of the uterus. The semen is slowly injected into the pipette. Flushing the pipette is neither recommended nor necessary. If the mare is prone to infection a post breeding uterine infusion the day after insemination may be required. Withdraw the pipette and the hand together.

Now that the semen is in the mare is the time to check the status of the follicle. Waiting to do the rectal palpation until after the mare is inseminated means the semen is in the mare as soon as possible. If the mare has ovulated then it is best to just hope she will settle. If she has not ovulated then you should consider giving the mare a shot of HCG to stimulate ovulation.

The last test is to test the semen for viability. Warm the remnants of the semen in the shipping bag to 100°F and place a drop on a prewarmed slide. The semen should be inspected under a phase contrast microscope for motility. You should see sperm swimming around. If all of them appear dead check the temperatures again. The most common complaint from mare owners is that they received dead sperm. Improper warming of the sample can give false negatives. If you are certain of your procedures call the stallions farm immediately and ask. Some farms will keep a portion of each collection on the premises in a second container. This procedure can be used to test whether the semen was collected properly. If the on farm sample is OK then the problem may have been during shipping. If that is the case selecting another shipment method, perhaps airline counter to counter is called for on the next cycle.

Now that the mare is inseminated you should return the shipping container to the stallion owner as soon as possible. Your breeding contract may impose penalties for containers not returned in a timely fashion. Remember that you received semen because the previous mare owner returned the container quickly. Follow-up care will involve determination of whether the mare conceived. Early ultrasound examinations can be used to determine the status of the mare. At our farm we routinely do an 18-21 day ultrasound examination. This is repeated about one week later. The early exam gives an indication whether the mare has a vesicle and whether she is carrying twins. Because it is hard to diagnose pregnancy that early even if the mare is not in foal we generally wait until the second exam to decide to cycle the mare for another shipment. Waiting until the second examination at about 28 days gives enough time to pinch a twin pregnancy which has not resolved itself and to verify the embryo is developing normally. At 28 days the heartbeat is visible and is a good indicator of a normal pregnancy. Once the mare is in foal you should continue with standard veterinary care. Stallion owners may require certain vaccinations, especially rhinopneumonitis be given. Your breeding contract should spell out any required examinations, vaccinations and procedures. If the mare loses the foal it should spell out how that will be handled. There is no reason why a stallion owner cannot offer the standard live foal guarantee when providing transported semen. A stallion owner who has different guarantees for live cover vs. TS is probably not a good choice for your mare.

One unrealistic expectation of mare owners regarding transported semen is that it will be less expensive than on farm breeding. While it is true you do not have the cost of transportation and care of the mare and foal while at the stallions farm you will have additional veterinary examinations, collection and shipment fees. We have found that the costs are roughly the same as for any other method of breeding.

The benefit of using TS is the ability to keep a valuable mare and foal at their own premises and the ability to breed to stallions far away from your location. Small breeding farms may stand stallions at stud via TS because they are not able to take in many outside mares. If the farm is experienced this can be another good reason to use TS for your mare. Transported semen can be a valuable resource when used appropriately. While breeding by any artificial method requires more intensive mare management you can get good results. By selecting a good candidate mare, understanding the additional veterinary care that may be required, having appropriate facilities and working with a knowledgeable stallion owner you can achieve good results with transported semen.

CMK horses are a valuable resource that we hold for future generations. Transported semen is one tool that can help us preserve and maintain this unique genetic treasure. I would encourage mare owners to try transported semen and would welcome the opportunity to discuss our experiences with other breeders.

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