

# Still Fearful of FROZEN?

By Gigha Steinman

**FIVE YEARS AGO** *Warmbloods Today* published an article about using frozen semen, as opposed to other methods, in order to breed sport horse mares. This made us wonder—although fresh shipped semen is still more popular, is frozen semen gaining ground? Are any of the fears breeders faced five years ago dissipating? Now more than ever, the frozen option gives North American breeders easy access to top stallions worldwide.

## The Basics of Frozen Semen

Semen is collected for freezing the same way it is collected for any AI (artificial insemination). After it is collected it is evaluated, centrifuged, mixed with semen extender, loaded into 'straws,' frozen in liquid nitrogen and stored in a liquid nitrogen storage tank.

Most straws are .5 ml (roughly the size of a coffee stirring straw) or 5 ml (roughly the size of a drinking straw.) The number of straws in a dose will vary based on the semen concentration and the progressive motility (ability to move spontaneously). The WBFSH (World Breeding Federation for Sport Horses) recommends a minimum of 250 million progressively motile spermatozoa per dose post-thaw. In order to meet this requirement a dose of frozen semen will usually require two to ten

straws.

## Advantages of Frozen

**Semen** The biggest advantage of frozen semen is the access it gives breeders to stallions worldwide. Carol Austin, of frozen semen importer/exporter Superior Equine Sires, believes that access to foreign stallions is essential for North American breeders. "The best stallions are generally in Europe. Frozen semen gives breeders access to the most proven, top stallions—few North American stallions have achieved the same level of accomplishment as their European counterparts," she says.

Access to popular deceased stallions is another advantage of frozen semen. Famous sires like Rubinstein I (1986–2000), Olympic Ferro (1987–2005) and Weltmeyer (1984–2011) are still available via frozen semen, giving breeders access to these well-known and proven stallions long after they have died.

Frozen semen can also be incredibly convenient for mare owners. It can be ordered months (or even years) in advance and then stored in liquid nitrogen tanks indefinitely, so it is readily available when needed. In contrast, fresh semen must be collected as needed and then shipped overnight to the mare owners, who may find themselves missing a mare's cycle entirely because of shipping delays, lost shipments or stallions who decided not to cooperate the day semen needed to be collected. Frozen semen can be more convenient for stallion owners for these same reasons, as well as making it easier to have semen available from stallions with active training and competition schedules.

## The Drawbacks

Karen Reid of Fox Fire Farm began brokering frozen semen in the mid-1990s. "The biggest drawback is the veterinarians," she says without hesitation, and adds that some veterinarians lack the experience to successfully

use frozen semen and some are unwilling to use it because the process is more demanding than handling and inseminating with fresh-shipped semen. She also



Semen straws on a freezing rack.

notes that some vets in rural areas may be unwilling or unable to commit to using frozen semen because of the travel logistics which go along with the increased need to more closely monitor mares being bred with frozen. "If you have to drive your mare a few hours to an experienced vet with a clinic, then that may be the best way to go," she advises.

Frozen semen is also infinitely more fragile than fresh semen and must be handled carefully. Exposing frozen semen to conditions outside the storage tank for even a few seconds can cause irreparable damage, for example. Because of this, veterinarians must be very careful when handling or thawing frozen semen. Many will only inseminate with frozen semen at their own facilities with their own laboratories, which can be inconvenient for mare owners, especially those who are accustomed to having their veterinarian come to their farm to inseminate with fresh-shipped semen.

Most frozen semen tends to be sold without a "live foal guarantee" (LFG), whereas a LFG is usually standard with fresh-shipped semen. The lack of a LFG can also make some breeders hesitant to try frozen semen.

Carol has also noticed that some breeders like to use stallions they're able to see in person, which can rule out both European and deceased stallions. The breeders who prefer domestic stallions tend to opt for fresh shipped semen, since that is an option offered by most stallion owners/managers.

### **New Protocol**

Ideally mares should be inseminated with frozen semen within twelve hours before or six hours after ovulation. Previously standard practice was to palpate or ultrasound the mare daily until her follicle reaches 35 mm and then continue to ultrasound every six hours (four times a day) until she ovulates—which could be days later. This resulted in numerous palpations and ultrasounds and was very time consuming for the veterinarian, and therefore expensive for mare owners.

Now, however, the two-dose timed insemination protocol has become much more common. (Variations, such as using the timed insemination protocol but splitting a dose instead of using two doses, are also common.) With the timed insemination protocol the mare is palpated or ultrasounded daily until her follicle reaches

35 mm and then she is given an ovulation-inducing agent such as hCG or Deslorelin. Then, instead of ultrasounding every six hours, the mare is inseminated 24 hours after the hCG or Deslorelin was administered and again 16 hours later (40 hours after the ovulation-inducing drug was administered).

"This protocol seems to be just as successful as the old way, and it's much easier on vets," says Carol Austin, who adds she has noticed veterinarians becoming more comfortable with frozen semen in general. Be-

cause the two-dose timed insemination protocol requires fewer palpations and ultrasounds, it makes the process easier for mare owners who prefer to keep their mares at their own farms instead of taking them to a vet clinic.

### **Finding a Veterinarian**

Before mare owners make plans to breed with frozen semen, it is critical to find a veterinarian who is not only experienced in equine reproduction but also has experience specifically with frozen semen.

Mare owners, you should not be afraid to politely inquire about a veterinarian's experience and willingness to work with frozen semen. Determine if you'd prefer to leave your mare at a clinic or if you'd prefer to

have the veterinarian come to your farm, and inquire as to whether they have a clinic and/or whether they are willing to make farm calls for frozen semen breeding. It is also a good idea to inquire about costs beforehand as the costs of breeding with frozen semen can add up even more quickly than the costs of breeding with fresh semen.

### **Theriogenologists vs. General Practice Veterinarians**

Many general practice equine veterinarians are willing to inseminate with fresh semen but are not as likely to work with frozen semen, usually because of the extra time and/or experience required. In contrast, most equine theriogenologists (veterinarians who specialize in equine reproduction) will happily work with frozen semen. Reproduction specialists are also likely to be more accessible than general practice veterinarians because they're unlikely to be called away for a colic or other emergencies.



Preparing a shipment of frozen straws in a dry vapor shipper.

Word of mouth is a great way to find an equine reproduction specialist, as is the internet. The Society for Theriogenology has a searchable database at [www.therio.org](http://www.therio.org) where individuals may search for veterinarians based on several criteria, including location. This can make it easier to find veterinarians who are board certified in theriogenology.

### **Growing Popularity**

Carol Austin has been brokering semen since 1999. She says her business grows every year and estimates it has doubled in the last five years. She notes that some people like to breed maiden mares with fresh semen for their first foal before switching to frozen for subsequent foals, and some people will switch to fresh semen if they're having a season where they're not getting a pregnancy from frozen. Nonetheless, she says, in her experience the overall popularity of frozen semen continues to grow.

Carol adds that not only is the popularity of frozen semen increasing, but the market is expanding as well. "Dressage breeders have always been the majority of my business and I still sell the most frozen semen to dressage breeders," she says. "But there's been more interest in the

last few years from jumper breeders, and in the last three to four years I've been beefing up the roster of eventing stallions too." She's also seen an increased interest in frozen semen from breeds like Friesians, and she's added Dutch Harness Horse stallions to her line up after getting interest from a most unlikely source—the Amish!

As the use of frozen semen grows in popularity, there are also more North American stallion owners opting to offer frozen semen from their stallions. Jos Mottershead of Equine-Reproduction.com LLC reports that he's seen a definite increase in the number of U.S. and Canadian stallion owners having their stallions' semen frozen.

Although it remains unlikely that frozen semen will ever replace the market for fresh shipped semen, frozen semen will likely continue to increase in popularity as more veterinarians and mare owners become comfortable with it. While science will provide advances in insemination protocols to make the process easier and more affordable, we can expect the "fear of frozen" to continue to lessen over time. As that happens, mare owners will find themselves with more and more options—which can only be a good thing as we work to improve our domestic breeding. 