



## Handling Procedures for 1/4 cc Straws

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The introduction of European dairy breeds and *gender* SELECTed™ semen to Select Sires product line has introduced our staff and customers to a new type of semen packaging: the 1/4 cc French straw. The main difference between the 1/4 and the standard 1/2 cc straw is the diameter. The primary advantage of the 1/4 cc straw is that it requires less storage space and only half as much extender is required to fill the straw. The greater surface to volume ratio of the 1/4 cc straw influences freezing rates resulting in some reports of very minute advantages in post-thaw sperm survival. However, these characteristics also make 1/4 cc straws more sensitive to post-thaw temperature change. Therefore, thermal control in the field is extremely important to maintain optimum conception with the 1/4 cc straw.

### SPECIAL EQUIPMENT NEEDS

- A special A.I. gun designed to accommodate the smaller diameter 1/4 cc straws is required.
- Sheaths used with 1/4 cc straws must contain the plastic inserts to ensure a proper seal with the end of the straw.
- Some tweezers designed for 1/2 cc straws fail to tightly grasp the 1/4 cc straws. Tweezers and A.I. guns that are universal to accommodate both straw types can be purchased.

### SEMEN HANDLING PROCEDURES

The semen thawing and handling procedures for 1/4 cc straws are identical to those for the 1/2 cc straw.

- Avoid semen exposure by keeping straws well below frost line of the storage tank.
- Thaw straws in 95° F (35° C) water for a minimum of 45 seconds.
- Thaw no more straws than can be inseminated in 10 to 15 minutes.
- Pre-warm everything that may come in contact with straws: guns, sheaths, paper towels, sheath covers, etc.,

*“With the exception of sexed-semen, which must be processed at lower cell number dosages, the conception rates achieved with 1/4 and 1/2 cc straws are for all intents and purposes, identical provided inseminators pay strict attention to the details of proper semen handling.”*

- Wrap the assembled gun in a paper towel or protective sheath and place close to your body or in an electronic gun warmer to provide thermal and hygienic protection during transit from the thaw bath to the cow.

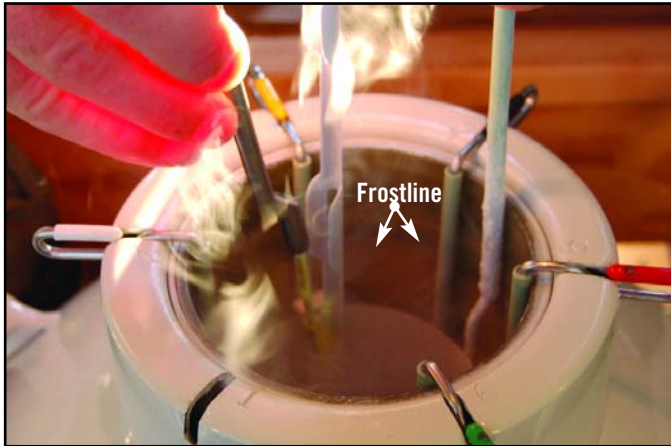
### LOADING 1/4 cc INSEMINATION GUNS

Universal A.I. guns that accommodate both straw types typically work fine when you first purchase them. However, alignment problems between the straw and plunger often develop due to a bent plunger or perhaps some trash or a burr inside the barrel. When this occurs, use the following procedures:

- After warming the gun, push the plunger all the way in so that the tip of the plunger is exposed on the straw end of the gun.
- Remove the straw from the water bath and completely dry it in a clean paper towel.
- **DO NOT CUT THE LAB SEAL END OF THE STRAW.**
- Seat the cotton plug end of the straw onto the plunger and push the straw into the gun gently causing the plunger to retract.
- Cut 1/4 inch squarely from the lab seal end of the straw.
- Place the sheath over the end of the straw and A.I. gun and assemble as normal taking care not to accidentally push the plunger in the process.



## ▼ HANDLING PROCEDURES FOR 1/4 cc STRAWS



Avoid semen exposure by keeping straws well below the frost line of the storage tank.

Although separate A.I. guns for  $\frac{1}{4}$  and  $\frac{1}{2}$  cc straws have obvious disadvantages, A.I. guns specifically designed for  $\frac{1}{4}$  cc straws have fewer alignment problems than do universal A.I. guns. In general, A.I. guns specifically designed for  $\frac{1}{4}$  cc straws will usually eliminate the need to seat the straw on the plunger and allow for loading procedures identical to those used for  $\frac{1}{2}$  cc straws.

### **gender SELECTed SEMEN**

Although  $\frac{1}{4}$  cc straws contain a smaller volume than their  $\frac{1}{2}$  cc counterparts, the number of sperm in each will generally be the same with the exception of *gender SELECTed* semen. Due to the slow speed and efficiency of sex-sorting technology, commercialization is only economically possible through lower sperm number dosages. This further heightens the importance of strict adherence to proper semen handling procedures in order to maintain optimum conception potential. To optimize the opportunity for a return on investment from this low sperm number product, *gender SELECTed* semen is presently only recommended for use at first or second service in virgin heifers detected in standing estrus.

Although research indicates the magnitude of reduction in conception is similar in cows as in heifers (approximately 75 to 80 percent of conventional), because the conventional semen baseline conception rate is typically 30 to 40 percent in cows compared to 55 to 60 percent in heifers, there is simply a greater opportunity for a return on investment when expensive semen (sexed or conventional) is used in virgin heifers. The same logic applies relative to fixed-time A.I. Although sexed semen may perform acceptably in timed A.I. programs, the fact is that many animals will not respond to treatment and use of any expensive or short-supply semen in this scenario may not be the wisest allocation of assets. At least when an animal is



Tuck prepared guns close to your body or in electronic gun warmer to provide thermal and hygienic protection during transit from the thaw bath to the cow.

observed in estrus, we do know there is a “possibility” for conception. The same cannot always be said for timed A.I.

### **SUMMARY**

The only meaningful difference between  $\frac{1}{4}$  and  $\frac{1}{2}$  cc straws is the diameter. Although this difference facilitates greater storage efficiency and reduced shipping expense, the  $\frac{1}{4}$  cc straws is somewhat less user-friendly being more difficult to handle, more difficult to read, and more sensitive to post-thaw temperature changes. With the exception of sexed-semen, which must be processed at lower cell number dosages, the conception rates achieved with  $\frac{1}{4}$  and  $\frac{1}{2}$  cc straws are, for all intents and purposes, identical provided inseminators pay strict attention to the details of proper semen handling. ♦

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