

What About Frozen Semen?

By Peter W. Aschbacher¹

In the past few years many articles in farm magazines and papers have concerned the use of frozen semen for inseminating dairy cattle. Some have given good discussions of possibilities of frozen semen, while others have tended to exaggerate its advantages and tried to make it sensational.

The technique of using frozen semen has developed very rapidly. At the present, sufficient knowledge has been gained so that results comparable with those from use of liquid semen can be obtained. This has been shown by artificial breeding organizations which are using frozen semen entirely, and in others which have only part of their technicians using it. At the present time in North Dakota, frozen semen is available only for special matings.

However, experimentation with frozen semen and other methods of prolonging the life of semen are being carried out by the bull studs serving this area, so some changes may be made in the future.

With the use of proper techniques, semen may be stored in the frozen state for long periods of time. This makes it possible for the technician to have semen available from all the bulls at the stud at all times. One of the biggest objections by pure-

¹Assistant Dairy Husbandman.

bred breeders to artificial insemination has been that they have to use too many different sires which results in lack of uniformity in the future herd. With frozen semen it will be possible for them to select the bull they wish to use, and semen from that bull will be available at all times.

Another advantage, which may apply to conditions in this state, is that shipping costs can be reduced because it will not be necessary to make daily shipments. At the present time about 15 percent of the cost of an insemination is due to shipping charges. Other possible advantages are more efficient use of semen from superior sires. Theoretically, less semen should be wasted during the slack breeding seasons as it can be frozen and stored for future use. Also, technicians should have very little waste as semen is not thawed until immediately before it is used, while with liquid semen an inseminator must estimate his needs and any excess must be discarded. This would make it possible for a bull stud to breed more cows per bull and thus reduce expenses.

A further advantage is offered in the fact that a young bull may be used for a short time and then taken out of service until his daughters have production records to show if the bull is worth using further. During the time in which the bull's first daughters are growing up, semen can be frozen and stored for later use if he proves to be a good bull. This will eliminate the long period of idleness of young bulls which have been sampled and removed from wide use until their first daughters have made production records.

The use of frozen semen will introduce some new problems in artificial insemination. First of all, the farmers will have to accept this

method of insemination. To get full benefit from frozen semen the change to frozen semen in an area must be complete, as many of the economies would be lost if technicians were using both frozen and liquid semen. Also, technicians will have to be retrained to follow different procedures which probably will have to be carried out even more carefully than the recommended procedure with liquid semen.

All research has indicated that semen must be kept at a temperature near -110°F . If it is held at warmer temperatures or allowed to warm up and then recooled, the sperm will die quite rapidly. This temperature is considerably colder than the coldest winter day even in North Dakota. It takes special equipment and considerable expense to maintain these temperatures. Technicians will need special equipment and different methods of transporting the semen will have to be devised.

With present methods of freezing semen some of the sperm cells are killed and because of this the semen cannot be diluted as much as with liquid semen. Also, semen from certain bulls cannot be frozen satisfactorily with present methods. Sometimes these are the best bulls, and bull studs do not like to discontinue their use.

The possibility that the advantage of frozen semen will outweigh the disadvantages depends upon how well some of the problems are solved and how well frozen semen fits into the conditions of a particular bull stud. With research solving some of the problems and with the help of experience gained by other bull studs using frozen semen, it is quite possible that artificial breeding organizations serving this area may find frozen semen can be used to good advantage.