

Progress Toward Hog AI Reported

A method for successfully freezing boar semen brings the swine industry one step closer to artificial insemination (AI), according to a USDA report.

Frozen semen has been widely used in the cattle industry for 20

years, but freezing boar semen has met with many failures.

Although some boar sperm motility survived freezing, the main problem has been damage to the sperm's acrosome of head cap. The acrosome contains

enzymes that the sperm uses to enter and fertilize the egg. Apparently, acrosome damage prevents this vital process.

Another problem is that billions of sperm are needed per insemination to obtain fertilization in sows. The uterus of a sow destroys sperm in great quantities so that few are available for fertilizing the eggs. The mechanism of this destruction has not been discovered.

With all these problems, however, ARS physiologists Vernon A. Pursel and Lawrence A. Johnson have developed a procedure for freezing semen that increases acrosome survival and sperm viability of thawed semen so that fertilization is possible. Workers at the University of Minnesota, St. Paul, and at Cambridge University in England have also recently reported progress in preservation of boar semen using some what different procedures.

In tests at Beltsville, Md., the use of frozen semen has resulted in the birth of 72 piglets from 9 sows. Other sows, inseminated and then slaughtered, were carrying embryos. In all, AI led to successful fertilization in 45 of 83 gilts.

Though AI has been successful

with the new freezing procedure, some gilts checked for pregnancy have been only partially fertile. That is, there were fewer embryos than in a natural-service pregnancy. Dr. Pursel thinks this can be remedied with refined procedures.

For AI, fresh semen is collected and diluted with an extender developed at Beltsville. The extender prevents the destruction of sperm cells during freezing.

A key factor for success appears to be the addition of glycerol to the extender during cooling and its subsequent removal before the semen is actually frozen. Glycerol removal is essential for both sperm motility and acrosome integrity. With cattle semen, leaving glycerol in the extender has no harmful effects.

Cooled semen is poured into small indentations in a block of dry ice and frozen into pellets. These pellets are then collected and frozen at -196 degrees C. The semen is thawed just before use. Thawed semen had 5 to 20 per cent motility and 28 to 54 per cent normal acrosomes.

Sows are inseminated with a long rubber tube that has a corkscrew-shaped end. One man can conduct the inseminating if a boar is kept in the pen next to the gilts. When a boar is present, a gilt in heat will remain still and can easily be inseminated.

AI could eliminate many of the problems of natural service, including the spreading of disease by the boar, the labor needed for hand or pen mating, and the injury to young gilts from older boars that are too heavy.

Problems that must be solved for AI to be commercially practical include detection of heat, determination of the fertility of thawed semen from a particular boar, and use of only one insemination per sow for economy.

While much research and refinement are yet necessary, the scientists are hopeful that their procedure will open the door to breeding genetically superior sires with large number of sows.

Return Goods Constructively

An often forgotten dimension of the consumer's responsibility is the art of returning goods constructively.

The responsible retailer wants and needs to know when products have not performed satisfactorily, reminds Mrs. Carol Rothermel, assistant Chester County Extension home economist.

Consumers can help by returning unsatisfactory merchandise. Mrs. Rothermel suggests the following procedures when returning defective textile products:

Clearly explain the problem in writing. Be specific. Was the difficulty in shrinkage, piling, construction, color loss, or something else?

Include the date of purchase and the price. When possible, give model or style number and send copy of sales receipt with the complaint.

State length of time the item was used or worn and the approximate number of launderings and-or cleanings.

Describe briefly the laundering or cleaning procedure used, along with the names of special chemical or laundry products used for pre-treating or stain removal.

Send or take the merchandise with accompanying letter to the manager or buyer of the appropriate department of the store where you bought the item. When returning by mail, be sure to insure the parcel or send by registered mail.

Include your name, address, and telephone number with the letter.

Constructive returns made in this manner may require time and patience on the part of the consumer, says Mrs. Rothermel. But they also serve your best interests by helping the manufacturer and the retailer constantly improve the quality and value you receive for your clothing dollar.

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