Horns or body breeding for future A.I. ?

By **Jim Cotton**
Editor

An emphasis making the rounds in the AI. industry is the importance of retraining. Research shows even experienced inseminators can benefit from brushing up.

Techniques can become rusty. Perhaps an important step or refinement has been forgotten or compromised by bad habits. Shortcuts may be allowing error to creep in. The manual or textbook may be dated.

Consequently, students of the AI. industry are evaluating established methods and exploring new approaches.

One of the most controversial studies concerning AI. technique is the work conducted by Dr. Phil L. Senger, formerly of The Pennsylvania State University and now stationed at Washington State University. Dr. Senger is a regular columnist appearing in *Hoard's Dairyman* and is internationally recognized for his expertise in cattle reproduction, specifically AI.

Dr. Senger and Penn State graduate student J. L. Peters developed a series of tests directed toward AI. skills. X-rays of cow reproductive tracts were analyzed to determine where semen was being deposited by experienced herdsmen/inseminators. Nine participants were selected with an average of more than four years' experience.

The nine were retrained to breed cows by depositing semen in the body of the uterus - body breeding - and then tested six months later.

Dr. Senger's objectives were to emphasize:

1. "Proper techniques for palpation and grasping the cervix...
2. placing the index finger of the palpating hand directly over the internal cervical opening and making contact with the tip of the insemination syring...
3. and maintaining contact with the tip of the insemination syringe while depositing semen."

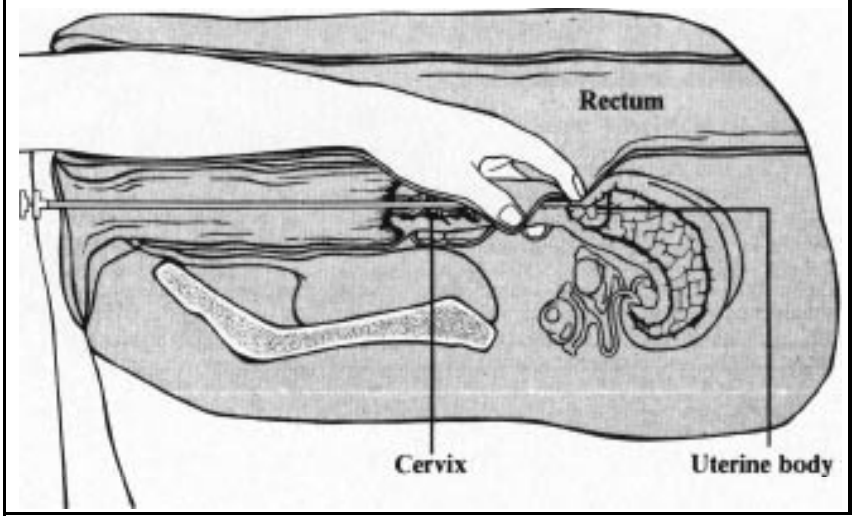
Discovered was an important increase in accuracy after retraining. Almost half of the A.I. attempts were incorrect before retraining. However after retraining, 95 percent of attempts were correct.

These same nine technicians were retrained a second time. In the second phase, the instructions were to deposit half the semen in the right uterine horn and the remaining half in the left. X-rays were made. Prom this phase, a key point emerged. Dr. Senger emphasized the depth of the A.I. rod insertion in any uterine horn:

"An important point is that the goal of horn breeding is not to put the semen deep in the uterus but to deposit the semen away from the cervix so that cervical errors are eliminated."

A.I. services across the nation are studying the latest research and its application toward traditional and proven methods. The outcome is a strongly held insistence that proper technique be followed, one without end-rims, slipshod "local options", or word-of-mouth mythology.

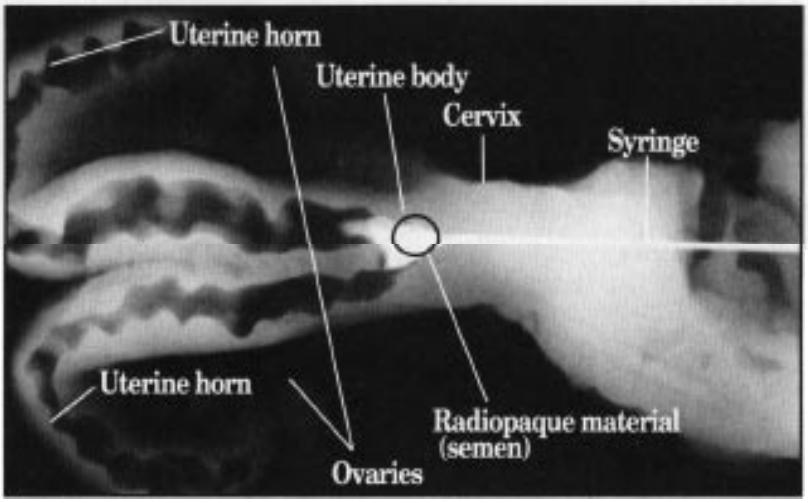
Technique for stopping on "Target"



It's important to keep the syringe from entering the uterus. This is the proven method most national A.I. firms suggest as effective and successful. Inseminators should press down slightly with their index fingers at the front limit of the cervix. Sketch courtesy American Breeders Service.

Keep in mind...

1. Trim fingernails short. Always wear protective gloves.
2. Develop postive attitude; relax and be gentle.
3. Stand somewaht sideways.
4. Lubricate gloved arm.
5. Rub cow's anus with fingers, inserting hand in a coned configuration.
6. When wrist-deep in rectum, start sweeping motion to find the cervix.
7. Wipe vulva with clean paper towel.
8. Enter vulva with syringe held at a 35 to 45 degree angle upward.
9. Lower syringe to a level position and pass to cervix.
10. Feeling the cervix through the rectum, pick it up and place it onto the syringe tip.
11. Manipulate cervix to pass the syringe through to the foward end.
12. Keep index finger at the front limit of the cervix. Feel syringe tip as it emerges. This is the target. Deposit semen here.
13. If the cow or heifer is suspected pregnant, only pass the syringe 2/3 to 3/4 of the way through the cervix before depositing the semen. Note such status on the barn chart or cow record card.



The x-ray shows radiopaque material being &posited on target. Notice the body of the uterus is very small. Accordingly, inseminators must concentrate on where the syringe tip is located. (Produced by ABS veterinary and research departments. Procedures employed were adapted from Dr. P.L. Senger and J.L. Peters, Journal of Dairy Science, Volume 65, Supplement 1, page 187, 1982.)

Most A.I. firms are awaiting more scientific confirmation, for example, of so-called 'horn" breeding. Only soundly researched investigations without comlicting results will convince the A.I. industry to recommend modifying technique for this or any procedure affecting semen collection, storage, of deposition.

Dwight Williams, manager of training for American Breeders Service, states his company will not recommend any deviation from proven technique until there is conclusive, veriable evidence of the wisdom to do so. Until then, ABS asserts the "proper semen deposition site is and should remain as the point where the front end of the cervix joins the body of the uterus.

'We refer to this site as the 'target'," Williams continues. "The preciseness of this location makes it necessary for the inseminator to *concentrate* each time he or she breeds a cow. The uterine body comprises such a small space that the advancement of the insemination syringe beyond the target usually directs semen flow mostly to one uterine horn."

Consequently, the danger arises that the bulk of the semen will flow away from the horn containing the egg ready to be fertilized.

Williams realizes inseminators often take pride in their speed as well as their accuracy. But, given a contest, speed often wins out as more impressive and visible than accuracy. It's more readily apparent. Therefore, he urges technicians and breeder/herdsmen to ask

1. "Has the syringe tip been identified at the target' by my index finger?
2. "Have I removed my indexfinger from the syringe tip just prior to semen deposition?
3. "Is semen being deposited over a counted, five-second period?"

Dr. Senger apparently dealt with, these very safeguards as his retraining study progressed.

Aside from the conclusion cited above concerning cervical errors, Dr. Senger found insemination accuracy declined six months after body breeding retraining. Accuracy did not decline at the six month point after horn breeding retraining. In writing up this part of the study, Dr. Senger suggested accuracy sfter horn breeding retraining stemmed from the fact horn breeding was easier to accomplish.

Also, it was found mistakes in AI. rod placement during horn breeding were less severe than mistakes during body breeding. The most common mistake when body breeding was not placing the AI. rod completely through the cervix.

Lower conception because of cervix placement is well established. Hence, the absolute necessity of hitting the target ABS Specialist Dwight Williams describes.

Jumping to conclusions has prompted some controversy surrounding Dr. Senger's work. However, his defenders point out he is not advocating horn breeding as more effective than body breeding, but rather that retraining improves insemination accuracy. The benefit from Dr. Senger's research affirms the value of alert attention to proven methods and techniques plus concentration while applying them. Horn and body breeding were simply employed to provide a playing field to prove the importance of precision and proper procedure. Advancing one technique over the other was not the purpose. Remembering the target is far more influential in overall success.

Williams suggests one way inseminators can insure they're locked on the target is to deposit about one-half the semen and then check the syringe tip has not moved from its correct position (target) before depositing the second half

Another accuracy-enhancing method he recommends is to press the syringe against the palpation arm (the arm in the rectum) while the semen is being deposited. This practice will help prevent semen trickling back through the cervix.

This most often occurs when they syringeispullcdbacktbroughthecervixas the plunger is pushed forward to expel the semen, he points out. A common compromise in technique and a bad habit that's easy to develop.

Horn or body breeding:- The jury is deliberating and research is still being conducted. Dr. Senger's article in the August 25,1988, issue of *Hoard's Dairyman* could be one source of information, but retraining from any of the AI. studs should be more effective and far-reaching than trying to pick sides in a controversy.

Breeders are the beneficiaries ofon-go ing research and testing across the entire spectrum of today's AI. industry. Now, as back when AI. first became practible, it's vital all who practice it avoid shortcuts and AI. witchcraft. Whether horn breeding is merely the latest sensation, borderline quackery, or a significant new departure for the future remains unknown. Until it can be verified a change is in order, it appears Dwight Williams' 'target' is the only show in town.

Our thanks to Dwight Williams of American Breeders Service and Mark A. Varner, extension dairy specialist, the University of Maryland, for their contributions to this article.

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