ARTIFICIAL INSEMINATION OF GILTS

J.L. Nelson and D.G. Landblom

Past research at this station has indicated that two inseminations administrated at 12 and 24 hours after the detection of standing heat has resulted in better conception rates than one insemination given 12 hours following the onset of standing heat. Recent research studies indicate that ovulation in the gilt occurs at approximately 18-20 hours after the onset of standing heat. In an effort to reduce the cost of insemination, producers may be inclined to try and match insemination and ovulation, thereby eliminating one insemination. This trial was designed to compare the economics and reproductive performance of one insemination at 19-20 hours post detection of standing heat compared to one insemination at 24 hours post detection or the current recommendation for two inseminations spaced 12 hours apart.

In January 1980, thirty crossbred gilts were randomly allotted into three breeding groups. All gilts were handled as uniformly as possible; the only difference being the actual time of insemination. Live boars were used to detect standing heat twice a day at 7:30 A.M. and again at 4:00 P.M. Any gilt that would stand for the boar was marked, removed from the herd and placed in individual pens inside a barn where the actual insemination took place. In order to reduce variability with the frozen semen, a special three breed mixed semen collection was prepared by International Boar Semen. In 1980, the mixed semen was collected from the boars: Five Star Primer 93004, a Duroc; Compatable 950013, a Landrace; and Express 97005, a Spot. The actual cost of the frozen semen amounted to $11.10 per ampule not including freight, liquid nitrogen, equipment or time value.

All gilts included in this project were checked on a daily basis for return to estrus. Those returning were bred naturally to a registered Yorkshire boar (DES 15-7). The gilts were farrowed during the month of May.

In January, 1981, the trial just described was repeated using the same methods except the mixed semen collection was from three different boars housed at International Boar Semen at Eldora, Iowa. Semen used in 1981 was from the following boars: No. 970010 Complete (Spot), 930010 Balancer (Duroc) and 950019 Bokedal (Landrace).

Method of semen handling and insemination technique followed that recommended by International Boar Semen.

Results of both years trial are shown in the following tables:

Table 1. Comparison of Single or Double Inseminations in

The A.I. Trial with Gilts – 1980

	Single @ 20 hours Post Det.	Single @ 24 hours Post Det.	Double @ 12 & 24 hrs. Post Det.
No. of Gilts Inseminated	10	10	8
No. of Gilts Farrowing	7	6	4
% Conception	70%	60%	50%
Total Pigs Born	42	52	26
Avg. Pig/Litter Farrowed	6	8.6	6.5
No. Pigs Farrowed/Gilt Insem.	4.2	5.2	3.25
Insemination Cost/Pig Born	$ 2.64	$ 2.13	$ 3.41

Table 2. 1981 Results of Timed Insemination of Gilts

	Single @ 20 hours	Single @ 24 hours	Double @ 12 & 24 hrs.
No. of Gilts Inseminated	9	9	9
No. of Gilts Farrowing	2	3	1
% of A.I. Conception	22.2%	33.3%	11.1%
Total Pigs Born	10	12	6
Avg. Pigs/Litter Farrowed	5	4	6
No. Pigs Farrowed/Gilt Insem.	1.1	1.3	.66
Insemination Cost/Pig Born @ $17.33 Per Tube of Semen	$ 15.60	$ 13.00	$ 26.00

Discussion:

The weather in 1981 was relatively mild with little snow. The gilts were cycling in a normal manner, and actual insemination was done in a careful, uniform manner, except for time of actual insemination. The use of a detection boar made detection and insemination rather easy because his presence provides a good stimulus.

Results of the 1981 trial were very disappointing, with conception ranging from 11 to 33% only. There did not appear to be any trend or advantage for any of the insemination times used. Gilts not settled to A.I. later conceived to natural breeding with normal litters produced.

Summary:

While technique and semen used appeared to be normal, poor conception in 1981 would suggest low semen quality. Because of poor conception and small litter size, we could not recommend this method of breeding gilts. We hope to continue this study.