

Evaluation of the economics of using cervical vs. post-cervical artificial insemination in sows in field conditions

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The present study was developed to evaluate the economics of using cervical vs. post-cervical artificial insemination in sows in field conditions. The experimental groups were divided into sows inseminated by: 1) cervical artificial insemination (CAI): 3×10⁹ spermatozoa/80 ml (n=1716); 2) post-CAI: 1.5 ×10⁹ spermatozoa/40 ml (post-CAI 1)(n=1664); 3) post-CAI using 1×10⁹ spermatozoa/26 ml (post-CAI 2)(n=1683).

First of all, we calculated € saved/sow/year using post-CAI taking into account the following parameters: farrowing rate, insemination/sow/year, catheter cost, the inseminations per cycle, dosage cost and fixed cost. The post-CAI technique leads to a cost reduction compared with CAI. Our analysis shows that post-CAI 2 is the technique that reduced the most the total cost/sow/year (Table 1).

Table 1:
Evaluation of the economics of using CAI vs. post-CAI in field conditions.

	CAI	Post-CAI 1	Post-CAI 2
Farrowing rate (%) ^a	82.34	86.84	84.08
Inseminations/sow/year ^b	2.85	2.70	2.79
Catheter cost (€) ^a	0.15	0.60	0.60
Inseminations per cycle ^a	2	2	2
Dosage cost (€) ^a	4.00	2.80	1.96
Total insemination cost/sow/year (€) ^{a,c}	23.66	18.36	14.28
Fixed costs (€) ^d	681	681	681
Total cost/sow/year (€) ^e	704.66	699.36	695.28
€ saved/sow/year using post-CAI	0.00	5.29	9.38

^a Data collected from our study.

^b Calculated as: 2.35 farrows/sow/year × 100/farrowing rate (%). 2.35 was obtained as an average from www.sipconsultor.com-Interpig 2010 report.

^c Total cost calculated as follows: inseminations/sow/year + catheter cost (X2) + dosage cost (X2).

^d Fixed costs: feed, medication, replacement, workers... Data base collected from 25% of total sows herds in Spain 2011 (www.sipconsultor.com).

^e Calculated as: total insemination cost/sow/year + fixed cost.

However, if we take into account the significant difference in litter size the lowest piglet production cost is obtained using post-CAI 1 which result in a saving of 1.06 € and 0.77 € per weaned piglet in comparison with CAI and post-CAI 2, respectively (Table 2).

Table 2:
Economic comparison between CAI and post-CAI methods in terms of cost of the weaned piglet.

	CAI	Post-CAI 1	Post-CAI 2
Total cost/sow/year (€)	704.66	699.36	695.28
Born alive ^a	12.19	12.59	12.16
Weaned/farrow ^b	10.97	11.33	10.94
Productivity/sow/year (€) ^{c,d}	25.78	26.62	25.71
Total cost of the weaned piglet (€) ^e	27.33	26.27	27.04

^a Data collected from our study.

^b Data collected from our study taking into account 10% piglet mortality during lactation.

^c Farrows/sow/year was taken as an average (2.35) (data collected from www.sipconsultor.com-Interpig 2010 report).

^d Weaned/farrow × Farrows/sow/year (2.35).

^e (Total cost/sow/year)/(Productivity/sow/year).

In conclusion, according to our reproductive parameters and our pig production cost analysis post-CAI 1 is the most profitable technique. However, a full economic study may be necessary depending on the country and farm conditions to clarify which specific post-CAI conditions are the most suitable.