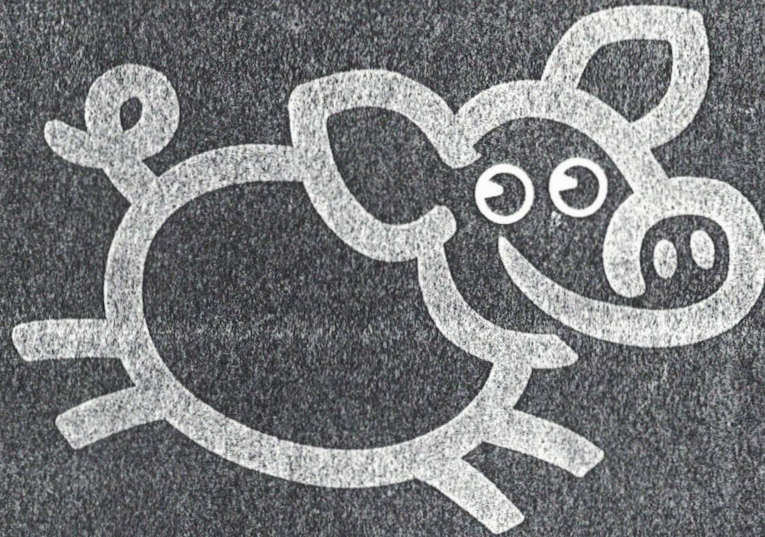


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# PROTEIN-RICH EXTENDERS FOR PORCINE ARTIFICIAL INSEMINATION. ARE THEY REALLY WORTH IT?

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## Introduction

Semen extender is responsible for preserving sperm cell viability and fertilizing capacity for short or long-term storage. Long-term extenders are preferred for processing semen because they keep fertilizing capacity of sperms longer (7 or more days); however, as time passes by, ability of sperms for fertilizing ova decreases in the same manner. In the last decade, swine industry is working hard trying to find a semen extender that posses both a long term capacity and the ability to keep fertilizing capacity of sperms similar to that of fresh semen (1). Some protein profiles in seminal plasma have been related with highly fertile boars and thus some of these components are been used to emulate that action in semen extenders. Some protein-rich commercial extenders claim to have an exceptional farrowing rate on sows inseminated regardless of their storage time (no more than ten days) (2). However, because of prize reasons, its use is only justified if an exceptional reproductive performance in the herd surpasses the extra cost that has to be invested. The objective of this study was to compare farrowing rate, litter size and cost-benefit of females inseminated with semen extended in either normal chemical extender or a protein-rich extender.

## Materials and Methods

The present study was performed on a commercial farrow-to-finish unit at southern Mexico. Two hundred and four F1 (York x Landrace) sows and gilts were assigned according they entered estrus into two experimental groups: (1) Control, 102 females inseminated with semen extended in normal chemical extender and (T2) 102 females inseminated with semen extend in a protein-rich, long-term extender (EnduraGuard, Minitube, Wisconsin EUA). All semen doses were prepared with 3 billion viable sperm cells in 90 ml total volume and were used at no more than 3 days of storage. Females were inseminated three times at 12, 24 y 36 hours after onset of estrus.

## Results

Farrowing rate was 85.29% and 88.24 for groups 1 and 2 respectively ( $P < 0.05$ ). Prolificacy is depicted in table 1.

**Table 1** Mean  $\pm$  SD of piglets born alive from females inseminated either with semen extended in a normal or protein-rich extender.

Treatment	Born alive (Mean $\pm$ Standard deviation)*	N
Chemical extender (control)	10.5 $\pm$ 1.27 a	87
Protein-rich extender	10.62 $\pm$ 1.32 b	90

\*Different superscripts within same column are statistically different ( $p < 0.05$ ).

## Discussion

Protein-rich extender showed 3% superiority of farrowing rate than chemical extender; these findings agree with those of Wilson (3) who found that 7 or 10 days old semen can be used safely if it was extended in a complex extender. Semen used at no more than 3 days of storage and extended in a protein-rich extender was superior of that of its chemical counterpart. This is coincident with Rozeboom *et al* (4) who found an exceptional performance in gilts inseminated in the same circumstances.

One tenth of a pig born alive increase was found in females inseminated with protein-rich extender compared with control group which resulted in 41 extra piglets born from that group of females (956 vs. 915 piglets out of 102 females respectively).

One liter of chemical extender is currently costing 48.00 Mexican (mxn) pesos whereas protein-rich extender costs 87.00 mxn pesos. In both cases, one liter of extender was used to prepare approximately 12 semen doses and thus a semen dose is charged 4 mxn pesos (extender only) in the first case and 7.25 mxn pesos in the second case. 306 Semen doses were used to inseminate each one of the experimental groups (102 females), so in group one extender expenses were 1224.00 mxn pesos whereas in group two were 2218.50 mxn pesos. If we consider that a farrowed piglet costs 120 mxn pesos (5), 41 extra piglets of the treated group means 4920.00 mxn pesos more than the control group. Subtracting the extra expenses due to the higher prize of protein extender, the real benefit of using such type of product is 3925.50 pesos mxn in a group of 102 females (no changes in the female inventory nor extra expenses in buildings or equipment).

**Conclusions:** Under the conditions of this study it was concluded the regardless of its higher prize, the protein-rich extender demonstrated better revenue than chemical extender due to its higher reproductive performance. Further studies are needed in order to unravel the basics behind this type of extenders.

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