

**IN A PROTOCOL FOR TIME-ORIENTED ARTIFICIAL INSEMINATION  
INJECTION OF A HIGHER DOSAGE OF HCG SHORTLY BEFORE AI REDUCES GESTATION  
RATE AND LITTER SIZE, COMPARED TO A LOWER DOSAGE OF HCG APPLIED IN THE  
SAME TIME-FRAME.**

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### Introduction

In this study, we investigated the effect of a combined treatment of sows with eCG (Pregmagon®), followed by hCG (Ovogest®) on their fertility. Ovogest® was given in two dosages, 500 IU and 750 IU, our assumption being that a higher dosage would lead to more ovulations and a better conception-rate, and thus better fertility with fewer inseminations.

### Material and Methods

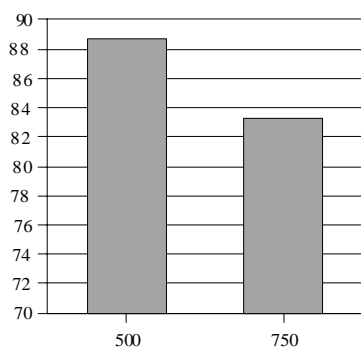


Figure 1: Gestation rate of sows treated with 500 IU and 750 IU hCG

The study was carried out on 272 sows in total (141 in the 500 IU, 131 in the 750 IU group), residing on 5 farms. No per-farm effect was detected, therefore the results were combined.

The treatment was based on a scheme proposed by Cassar *et al.* (1), also described by Bennet-Steward *et al.* (2). At weaning, the sows in both groups were injected with Pregmagon® at 600 IU and 800 IU for adult sows and gilts respectively. Instead of porcine Luteinising Hormone (pLH) used in the studies referred to, Ovogest® was administered to the sows 80 hours later followed another 36 hours later by artificial insemination. Insemination counts were from 1 to 3, based on the sow's behaviour (Fig. 3).



Figure 3: Sketch of the treatment scheme used in our study

### References

1. Cassar *et al.* Proceedings of the AASV, Toronto, Ontario, Canada; 2005:353-355
2. Bennett-Steward *et al.* Journal of Swine Health and Production, Vol. 5, Nr. 4, July/August 2007:194-197
3. Rothe K, König I. Hauptgutachten zur Erprobung des GnRH-Analogons "Berlin-Chemie" Stufe II., 15.10.1985.

After 24 to 28 days gestation was assessed with transdermal ultrasonography. We took the overall litter size (alive, stillborn, mummies etc. all included) as a measurement for the ovulation rate.

### Results

Gestation rate was: 88.71% vs. 83.33% with Ovogest® 500 IU and 750 IU respectively, which did not yield a significant difference, but showed a marked trend (Fig. 1). The average total litter size was 12.32 vs. 11.42 in the two groups (500 IU vs. 750 IU) (Fig. 2). This difference was highly significant. ( $p \leq 0.01$ , t-test). No difference was observed regarding the ratio of live born to total born piglets in the two groups.

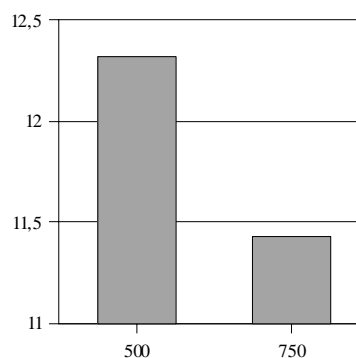


Figure 2: Piglets per Litter of sows treated with 500 IU or 750 IU hCG

### Discussion

Our results clearly indicate that in the treatment scheme we used, hCG, which has LH-like activity in swine, in higher dosages has an adverse effect on fertility, especially the number of ovulations. This is in accordance with the study by Rothe & König (3) who described similar adverse effects on fertility for the GnRH analogon Depherelein administered at higher dosages, which would presumably lead to higher levels of LH-like activity.