

## Sows Fecundity by the Maintenance System

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### Abstract

Fecundity registered by the females housed in group boxes, with different capacities, has an average of  $85.11 \pm 1.48$ , the best results obtained for females housed in boxes with a capacity of 7 heads,  $87.39 \pm 1, 47$ . The proportion of pregnant female at 28 days after artificial insemination decreases with increasing number of animals housed in boxes, so in the case of the animals kept in boxes of 14 animals, fecundity at 28 days was  $84.17 \pm 0, 93$ , and in the case of animals kept in boxes with capacity of 28 animals, the fecundity at 28 days was  $83.76 \pm 2.05$ . The difference between fecundity recorded in case of animals maintained in boxes of 7 heads was significant compared to fecundity of animals maintained in boxes with 14 and 28 heads ( $\chi^2$  test  $p < 0.001$ ).

**Keywords:** influence, fecundity, sows, system maintenance

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### 1. Introduction

Raising pigs is an ancient occupation of the people having a decisive role in ensuring with meat the world population (over 80% of the world population appreciate its qualities and consumes). In the last century, thanks to the achievements of science and technology in this area have produced significant changes, has moved from small production to large-scale production, due to the concentration and specialization of agricultural production, perfecting, thus, operating and animal systems growth in specialized units [1-4].

In our country there are conditions for the development of the growth of this species, especially due to a safe fodder base and due to high demands that enjoys traditional products obtained by industrial processing of pork meat.

**Swine breeding behavior** in different operating systems is, from at least a decade, a constant concern of specialists in swine growth. The results of research in the field show the diversity of

approaches and usefulness of scientific approach in finding solutions to optimize breeding sows indices. Proof: the large number of research dedicated to pregnant sow behavior increased in the group and or in individual boxes [5], the behavior of tethered pregnant sows [6,7], the sexual behavior of gilts [8,9], feeding stereotypes at pregnant sows [10], the study of pregnant sows housed in groups and individually [11], hormonal characteristics, behavior and performance of pregnant and lactating sows [12], the relationship between behavior of sows in individual housing or outdoors [13], the effect of introducing the ring in the snout and grouping the pregnant and lactating sows on exploratory behavior [14], the relationship between social rank of pregnant sows and their behavior [15], the relationship between behavior and reproductive performance of sows, the diurnal behavior of sows during pregnancy, the relationship between behavior and performance of sows and piglets in boxes and in Thorstensson breeding system [16].

The fecundity is the proportion of sows diagnosed as pregnant after the mating or artificial insemination.

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In order to achieve a high rate of fecundity it is very important to establish the exact time of ovulation. The ovulation occurs due to hormonal activity rather complicated and means the release from the ovary the mature egg. Ovulation is closely related to the start of heat and occurs on average on 36 hours from the beginning of the emergence of the first signs of heat. Egg fertilization occurs in the upper third of the oviduct and sowing or mount must be such that when the eggs come into this place, there already exist viable sperm and capable to fertilize these ovules.

## 2. Materials and methods

For the achievement of this scientific approach we conducted experience of an effective of 196 pregnant sows artificially inseminated maintained in three types of group boxes with different capacities, such as boxes of 7.14 and 28 heads. The results obtained were statistically interpreted applying the  $\chi^2$  test.

## 3. Results and discussion

Analyzing the registered fecundity of females housed in group boxes I found that the higher fertility recorded at 28 days after sowing was to registered sows housed in boxes with 7 heads

capacity, thus being of  $87.39 \pm 1.47$  after as apparent from table 1.

The most reduced fecundity was recorded to sows kept in boxes with a capacity of 28 heads, thus being of  $83.76 \pm 2.05$ . The average registered for the three types of boxes at 28 days from sowing was  $85.11 \pm 1.48$ .

So there is major differences in fecundity recorded in animals kept in boxes of 7 heads, these differences were statistically significant compared with the fecundity of females kept in boxes for 14 ( $84.17 \pm 0.93$ ) and 28 heads, where fecundity was situated at the value  $83.76 \pm 2.05$  for  $\chi^2$  test  $p < 0.001$ .

The same trend of fertility decreasing, in the same time with increasing boxes capacity I have noticed at 56 days after artificial insemination.

So in case of the animals kept in boxes with a capacity of 7 animals, the fecundity at 56 days from artificial insemination was  $85.31 \pm 0.62$  in the case of animals kept in boxes with a capacity of 14 animals the fecundity was  $81.66 \pm 1.25$ , and in the case of animals kept in boxes with a capacity of 28 heads, the fecundity was  $81.94 \pm 1.40$ , as is clear from the data presented in Table 2.

Therefore we see that are no significant differences between the fertility recorded at 56 days, depending on the size of the group boxes ( $\chi^2$  Test  $p > 0.05$ ).

**Table 1.** The fecundity at 28 days after artificial insemination, by the group boxes capacity

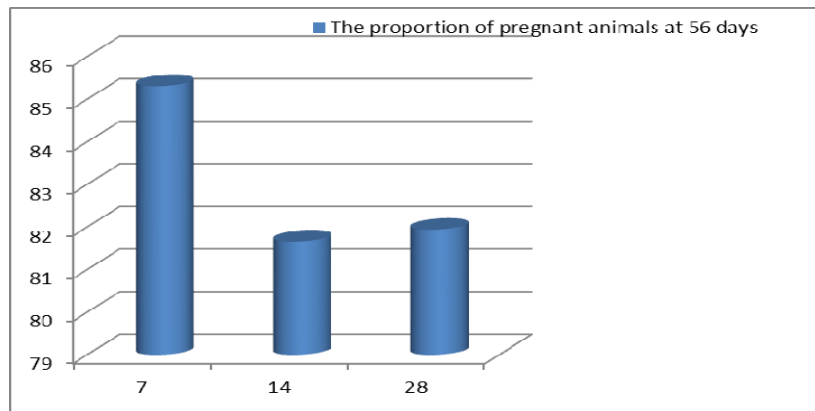
Boxes type	The proportion of pregnant animals at 28 days (%)
Boxes with capacity of 7 animals	$87.39 \pm 1.47^A$
Boxes with capacity of 14 animals	$84.17 \pm 0.93^a$
Boxes with capacity of 28 animals	$83.76 \pm 2.05^a$
Average	$85.11 \pm 1.48$

Test  $\chi^2$  A-a  $p < 0.001$ , A-b  $p < 0.01$ , A-c  $p < 0.05$ , a-a  $p > 0.05$

**Table 2.** The fecundity at 56 days after artificial insemination, by the group boxes capacity

Boxes type	The proportion of pregnant animals at 56 days (%)
Boxes with capacity of 7 animals	$85.31 \pm 0.62^a$
Boxes with capacity of 14 animals	$81.66 \pm 1.25^a$
Boxes with capacity of 28 animals	$81.94 \pm 1.40^a$
Average	$82.97 \pm 0.83$

Test  $\chi^2$  A-a  $p < 0.001$ , A-b  $p < 0.01$ , A-c  $p < 0.05$ , a-a  $p > 0.05$



**Figure 1.** The graphical representation of fertility at 56 days after artificial insemination, based on the capacity of the group boxes

## Conclusions

After artificial insemination at 28 and 56 days of gestation we can see that the fecundity registered the significant differences depending on the capacity of boxes for sows at 28 days after insemination.

The difference between fecundity recorded for sows kept in boxes for 7 heads was significant compared with animal fertility maintenance in boxes 7 or 28 heads for the  $\chi^2$   $p < 0.001$  test.

At 56 days of gestation the difference is not significant between fecundity recorded in the number of sows kept in a common box for the  $\chi^2$   $p < 0.05$  test.

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