THE EFFECT OF PROLONGED GESTATION LENGTH ON PIGLETS BIRTH WEIGHT

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Abstract

This research, based on PIC sows at the third-parity and on 396 farrowing records, was performed to investigate the relationship between effect of prolonged gestation length on piglets performances. The objective of this research was to investigate the effect of prolonged gestation length on litter size, piglets weight, piglets uniformity, mortality and propose some new practical solution which can improve the farm management. The gestation length was prolonged by using the Altrenogest in the late gestation for a period of 7 days, starting from the 112 day of gestation (112-118 days gestation). Obtained results shows that extending the gestation length has beneficial effects on the average birth weight from an average 1.13 kg/piglet in the control group up to 1.58 kg/piglet in the experimental group and the neonatal mortality shows an important decrease from 12% in the control group to 4 % in the experimental. In conclusion, the administration of Altrenogest in late gestation can lead to the following effects:grouping the farrowing events and create the routine in the maternity with a high efficiency of working personal,getting the heaviest piglets at farrowing, each extra day of gestation add a intrauterine gaine of 112g/piglet.,decreasing de % of small piglets, the % of piglets with a birth weight over 1.5kg/piglet was 58.09% in experimental group compared with 13.99% in control group.

Key words: gestation, farrowing, piglet birth weight, survival, mortality

INTRODUCTION

This research, based on PIC sows at the third-parity and on 396 farrowing records, was performed to investigate the relationship between effect of prolonged gestation length on piglets performances. The research was conducted in a context of a commercial farm. The animals were organised in two groups: the Experimental group of 165 sows where the animals were treated to prolong gestation length and the Control group of 168 non-treated sows. The objective of this research was to investigate the effect of prolonged gestation length on litter size, piglets weight, piglets uniformity, mortality and propose some new practical solution which can improve the farm management.

In the animal world, pigs have a unique feature, the ability to produce a large number of piglets, relatively well developed and delivered in a relatively short calving time. It is well known that over 40% of the piglets weight at birth is performed in the late gestation. During the last weeks of gestation the rapid development occurs skeleton, muscles, internal organs, brain and especially the liver where are stored the reserves of glycogen, which will ensure the energy for piglets adaptation and survival in the external environment [5,6,7]. It seems that the most efficient and "cheap" weight gain is achieved during the late intrauterine period and it has a crucial effect on piglet survival after birth. Each day of gestation, in addition to the normal gestation period, generates an increase of about 100-200g / day, which cannot be neglected when hyper prolific sows can produce a large number of small piglets [1,2,3,4,9,10,11]

MATERIAL AND METHOD

The research was conducted in a context of a commercial farm on two groups of PIC sows at third- parity with an equivalent of 396 farrowing, records collected during a year period. The experimental group of 165

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sows were under Altrenogest treatment and control group of 168 non-treated sows (Table 1). The basic criteria for sows was that they should be at least at the third-parity, because that after about the third farrowing they are sufficiently developed as a body constitution an as a reproductive tract, which decrease the possibility of dystocia at the farrowing, especially when the big piglets are delivered [2,3,8]

The gestation length was prolonged by using the Altrenogest in the late gestation for a period of 7 days, starting from the 112 day of gestation (112-118 days gestation). Hormonal substance was given orally to ensure that the entire quantity was ingested by sow. For an easy use, the hormonal substance was administrated using a pump container, preferably one similar to that which contained Altrenogest. At 118 day of gestation the sows from experimental group, were treated with Cloprostenol, a synthetic prostaglandin analogue with luteolytic effect that had counteract the Altrenogest effect and the sows started to farrow on 119 day of gestation. The gestation length was analysed together with piglets birth weight, piglets uniformity, piglets mortality (Table 1).

RESULTS

Obtained results shows that extending the gestation length has beneficial effects on the average birth weight from an average 1.13 kg/piglet in the control group up to 1.58 kg/piglet in the experimental group and the neonatal mortality shows an important decrease from 12% in the control group to 4% in the experimental group (Table 1).

Table 1 Results regarding the effect of gestation length on litter size, piglets birth weight and mortality

Groups	Sows number	Gestation length (days)	Total number of piglets	Average litter size	Average birth weight (kg)	Differences in birth weight (%)	Neonatal mortality (%)
Control	168	115	2002	11.91	1.13	100	12
Experimental	165	119	2009	12.17	1.58	140	4

By Altrnogest use the gestation length was extend up to 119 days of gestation with four days compared to gestation length of non-treated sows (Fig 1) also it was noticed a slight increase in the average number of piglets obtained from experimental group 12.17 piglets/litter compared with 11.91 piglets/litter from control group (Fig. 2), but the most important thing was the birth weight of piglets, where the piglets from experimental group have reached an average of 1.58 kg/piglet, 450g/piglet above the average birth weight obtained in the control group (Fig. 3).

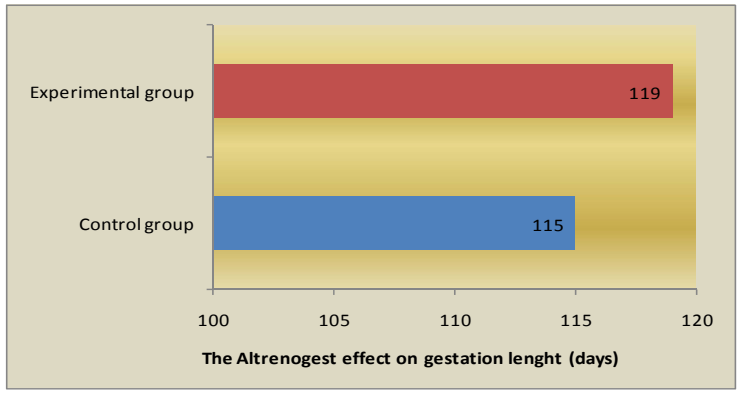

Fig. 1 The Altrenogest effect on gestation length in sows

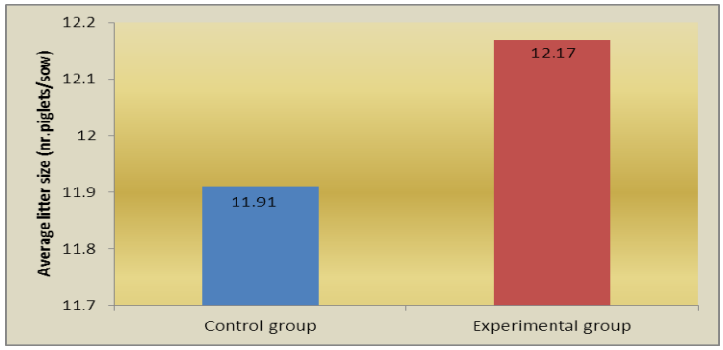

Fig. 2 The effect of gestation length on litter size

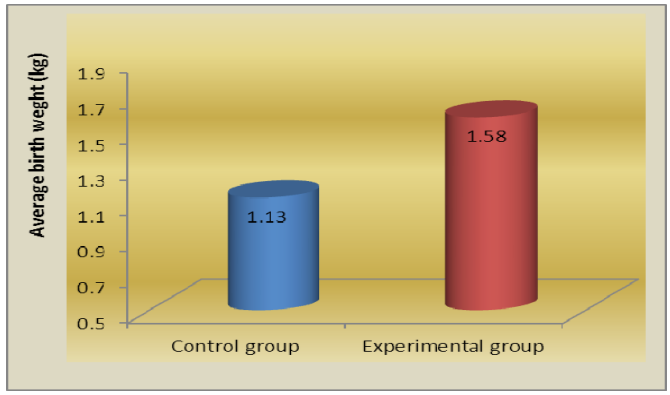

Fig. 3 The effect of gestation length on piglets birth weight

These 450 g/piglet was obtained in 4 days of extra gestation and yielded 112.5 g gain/day. Effect of prolonged gestation length has a significant impact on piglet birth weight distribution; if we take the average weight of the control group as a reference 1.13 kg/piglet we can see that 49.6% of piglets are under this weight while in the experimental group only 5.84% of piglets are below this weight (Table 2, Fig. 4).

Table 2 Results regarding the piglets birth weight distribution between Control and Experimental groups

Scale of the piglets birth weight (kg)	Total number of piglets		%	
	Control group	Experimental group	Control group	Experimental group
0.80-1.00	581	117	29.00	5.84
1.01-1.10	413	0	20.60	0.00
1.11-1.20	42	35	2.09	1.75
1.21-1.30	322	225	16.08	11.24
1.31-1.40	182	160	9.09	7.99
1.41-1.50	182	284	9.09	14.19
1.51-1.60	84	138	4.19	6.89
1.61-1.70	63	159	3.14	7.94
1.71-1.80	56	177	2.79	8.84
1.81-1.90	56	198	2.79	9.89
1.91-2.00	0	213	0.0	10.64
2.01-2.10	21	199	1.05	9.94
2.11-2.20	0	42	0.0	2.10
2.21-2.30	0	34	0.0	1.70
2.31-2.40	0	28	0.0	1.40
Total	2002	2009	100	100

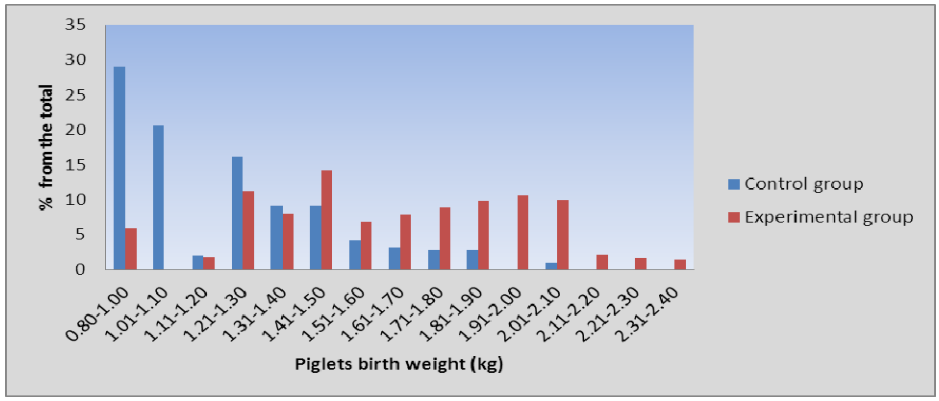

Fig. 4 Effect of gestation length on piglets birth weight distribution

If piglet birth weight distribution, taking as a benchmark weight of 1.58 kg experimental group is observed that 86% of piglets obtained from the control group are under this weight while only 41.9% in the experimental group (Fig. 5).

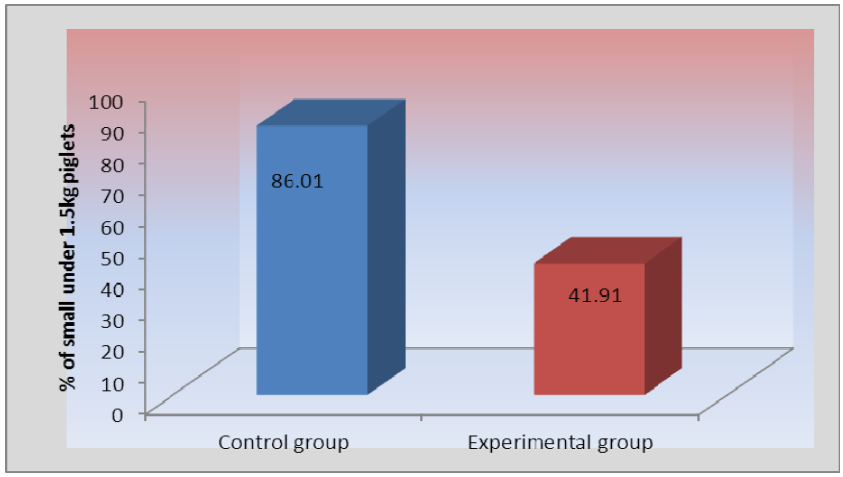

Fig. 5 Results regarding the % of small piglets from total obtained piglets

CONCLUSIONS

In conclusion, the administration of Altrenogest in late gestation can lead to the following effects:

- grouping the farrowing events and create the routine in the maternity with a high efficiency of working personal

- getting the heaviest piglets at farrowing, each extra day of gestation add a intrauterine gaine of 112g/piglet.

- decreasing de % of small piglets, the % of piglets with a birth weight over 1.5kg/piglet was 58.09% in experimental group compared with 13.99% in control group.

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