

# RESEARCH REGARDING THE PROLIFICACY OF PIC SOWS DEPENDING ON THE NUMBER OF PARTURITION

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## Abstract

*Between productive traits of pigs, prolificacy plays a particularly important because the number of piglets farrowed depends primarily on the number of piglets weaned and therefore those intended for fattening and meat supply and economic efficiency. The research study involved taking 200 sows belonging to the hybrid PIC, 100 sows PIC 1050 and 100 sows Camborough which were appreciated key reproductive indicators based on the number of calving. The fecundity of the results is an increase with age in sows, which runs until the third calving (82.2% and 83% Camborough PIC 1050) after which they begin to fall. Prolificacy, analyzed in both groups of sows was influenced by parturition number. The best results, the number of pigs farrowed were recorded at the third parturition (11.42 head PIC 1050 and 12.26 head. Camborough) and lowest in the first and fifth parturition. Between maximum and minimum prolificacy being recorded significant differences ( $p < 0.005$ ). recorded ( $p < 0.005$ ).*

**Key words:** sows, number parturition, fecundity, prolificacy

## INTRODUCTION

In the current growth and exploitation of pigs is considered that prolificacy is optimal when the number of piglets birth is equal to the number of sows tits (about 14 piglets) [2], [5].

Overcoming prolificacy over this limit is usually accompanied by the reduction in birth weight and piglet vitality. It also requires the allocation of too high prolificacy supernumerary piglets from other sows or less, increasing their artificial process that does not always give satisfactory results.

Increasing prolificacy can be achieved by using either breeding sows belonging to high-yield hybrids is the use of tri or tetra racial metise sows.

Hybrids sows made from a combination of maternal and paternal breeds due to the phenomenon of heterosis, achieved a 10-15% higher prolificacy than pure breeds [3],[5].

Prolificacy depends on many factors, including age and sows. Normally less than prolific in the first parturition, increasing progressively to III-IV parturition, parturition is maintained until the will then begin to decline.

To achieve a relatively constant prolificacy farm heifers is recommended that the number does not exceed 20% of the total number of sows and older sows to be reformed in time [1].

## MATERIAL AND METHOD

Establishing the number prolificacy of sows farrowing in the study, involving the taking of 200 sows belonging hybrid PIC 1050 PIC sows and 100 sows and 100 Camborough. It was considered necessary for both batches of the experiments, the following indicators to study reproductive:

- fecundity;
- prolificacy of sows depending of the number at parturition;
- number of piglets weaned per female.

Sows found in heat using the testing boars and the symptomatologic signets were inseminated twice/heat cycle on 12 hours interval using one semen dose of 90 ml with and 4 billions mobile spermatozoa.

After the insemination sows were hosted in individual cages for 30 days then those which did not repeat the heat were transferred in common cages (12 sows/ cages) until the 110th day from the insemination.

Three controls for sows in oestrus stage identification were performed in  $21 \pm 3$  days intervals. The fecundity was calculated reporting the sows that did not return in heat number to the total artificial inseminated sows' number. The prolificacy and the

available piglets' percent were evaluated at parturition.

## RESULTS AND DISCUSSIONS

Results regarding fecundity of 1050 PIC and Camborough sows studied are presented in tables 1 and 2.

Table 1 PIC 1050 sows fecundity, depending on the parturitions amount

Parturition	Inseminated Sows (head)	Pregnant sow at the first control (F%)	Pregnant sow at the second control (F%)	Pregnant sow at the third control (F%)
I	100	85,0	83,0	82,0
II	100	86,0	84,0	83,0
III	100	88,0	86,0	85,0
IV	100	85,0	83,0	82,0
V	100	84,0	82,0	80,0
Average ( $\bar{X}$ )	100	85,6	83,6	82,2

From the data presented in table 1 finds that the average fertility in 1050 PIC sows during operation is 82.2%, with a maximum recorded at the third parturition (85%) and a minimum parturition fifth (80%).

Also there is difference between parturitions, we can speak of an upward curve of fertility at the beginning of parturition until 3 parturition, when recording the maximum and declining towards the end

of economic exploitation, the fecundity is recorded 80.0% in the 5 - parturition, so we can say that as fertility decreases with age.

Descending slope of the curve encountered fecundity with age is normal considering the fact that the sequence of parturition results in lower body strength and increase the likelihood of common gynecological diseases.

Table 2 Camborough sows fecundity, depending on the parturitions amount

Parturition	Inseminated Sows (head)	Pregnant sow at the first control (F%)	Pregnant sow at the second control (F%)	Pregnant sow at the third control (F%)
I	100	85,0	82,0	82,0
II	100	87,0	85,0	83,0
III	100	88,0	87,0	85,0
IV	100	86,0	84,0	83,0
V	100	84,0	83,0	82,0
Average ( $\bar{X}$ )	100	86,0	84,2	83,0

Camborough sows fertility shows a curve similar to that recorded in 1050 PIC sows. Thus, by the third parturition, the fertility rate increases, then drops to fifth parturition, making the entire productive life a percentage of 83.2%.

Maximum fecundity Camborough sows was 85% (third parturition) and the minimum value was 82% (first and fifth parturition).

Overall Camborough sows were scored higher than the fertility of sows PIC 1050, which indicates better quality reproduction. Both groups of sows fertility obtained values

close to the data presented in the literature for this parameter [4], [5], [6].

Reproductive capacity of pigs is assessed by fecundity, which involves the application and adherence to a complex of activities and measures, some dependent animal, and others related to ensuring the environmental conditions, ending with the number and quality of weaned piglets during a year of production.

Prolificacy, a parameter specific reproductive sows for breeding, has a low heritability ( $h^2 = 0.15$ ), which suggests a major involvement of environmental conditions on the size and exploitation of results. However, under conditions conducive to growth and exploitation of animals, the prolificacy revolves around an average which is higher, as the hybrid is improved and more efficient [1].

Table 3 Reproduction performances of the PIC 1050 sows, depending on age

Parturition	Live litter piglets		Dead litter piglets (heads)	Total litter piglets (heads)	Weaning piglets (heads)	Weaning piglets (from litter piglets)
	Viable (heads)	Unlivable (heads)				
I	10,50		0,78	11,28	9,92	87,94
	10,20	0,30				
II	10,59		0,70	11,33	10,20	90,34
	10,35	0,24				
III	10,80		0,62	11,42	10,44	91,42
	10,60	0,20				
IV	10,72		0,66	11,38	10,18	89,46
	10,51	0,21				
V	10,50		0,77	11,27	10,02	88,91
	10,24	0,26				
Average ( $\bar{X}$ )	10,62		0,71	11,33	10,15	89,82
	10,38	0,24				

With regard to prolificacy of sows by age, data from the literature indicates that best results are obtained at parturition reproductive 3rd, 4th and 5th, regardless of race, so between the ages of 2 and 3 years without the animal's body weight exceeds 160kg.

From the data presented in table 3 is found that the number of live pigs farrowed was an upward trend followed by a decrease during the 5 parturition, consistent with the data presented in the literature. Minimum number of live pigs farrowed occurring in the first (10.50) parturition and highest (10.80) recorded the third parturition, with an average of 10.62 piglets for the 5 parturition.

Analyzing the number of pigs farrowed dead, we can see differences between parturition, the rate varying between 0.62 in

the third dead piglets farrowed and 0.78 piglets at first parturition, with an average of five parturition of 0.71 heads.

The total number of piglets weaned had a similar development farrowed piglets, we see the same upward curve at the beginning of parturition, with a maximum of 10.27 piglets registered 3rd parturition and parturition downward toward the end 10,03 piglets in the farrowing, registering an average of 10.15 piglets weaned/litter.

From the presentation of data in table 4 is observed that the sows Camborough prolificacy was a very good and relatively close during the five parturition. The minimum and maximum prolificacy occurring in the first (11.93 piglets/parturition) and third parturition (12.26 piglets / farrowing).

Table 4 Reproduction performances of the Camborough sows, depending on age

Parturition	Live litter piglets		Dead litter piglets (heads)	Total litter piglets (heads)	Weaning piglets (heads)	Weaning piglets (from litter piglets)
	Viable (heads)	Unlivable (heads)				
I	11,20		0,73	11,93	10,68	89,50
	10,86	0,35				
II	11,34		0,66	12,00	10,95	91,10
	11,08	0,26				
III	11,65		0,61	12,26	11,33	92,41
	11,43	0,22				
IV	11,58		0,64	12,22	11,24	91,59
	11,34	0,24				
V	11,38		0,74	12,12	11,00	90,75
	11,10	0,28				
Average ( $\bar{X}$ )	11,43		0,68	12,11	11,06	91,07
	11,16	0,27				

As the number of piglets weaned there is a very good average 11.06 piglets per litter. The large number of piglets produced per parturition (averaging 12.11 piglets) and those weaned (11.06 piglets) is the result of the genetic Camborough sows and applied technology unit.

Comparing the performances of two groups of sows note that the percentage of live pigs farrowed from total pigs was close to the two groups of sows (PIC 1050 at 93.73% and 94.38% to Camborough) which demonstrates the potential PIC sows genetically very good.

## CONCLUSIONS

The fertility indicator is an increase of the results of sows with age, ending on the third parturition, after which they begin to fall. Fecundity was influenced by the number of parturition in a lesser extent, the differences recorded in the five parturition, are small.

Prolificacy, analyzed in both groups of sows was influenced by parturition number. The best results, the number of pigs farrowed were recorded at second, third and fourth

parturition the and lowest in the first and fifth parturition.

To achieve a relatively constant prolificacy at farm is recommended that the number of sow to first parturition does not exceed 20% of the total number of sows and older sows to be reformed to time.

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