Frequency Weaning - Fertilization Interval in Large White Sows

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Abstract

The time from weaning to fertilization is a non productive interval in sows fertility. The present paper has studied the number of weaned piglets and farrowing rang as factors of influence in sows fertility, based on 1230 deliveries in Large White sows. The purpose of the research is to find end recommend measures for reducing this non productive interval. The analysis of this study showed the following results: 55.04% in first farrowing sows and 80.65% in the older ones were fertilized within 12 days after weaning farrows. The average time of the interval from weaning piglets to fertilization was 9 days in older sows and 16 days in gilts.

Keywords: frequency, sows, weaning-fertilization interval.

1. Introduction

The reproduce farms for swine its based economic efficiency on fertility of sows, the number of viable piglets obtained from a farrow and the number of farrowing achieved within a year. The interval between farrowing is a major indicator of the fertility at sows. The size of the sows farrowing interval participate following: gestation during, lactation during and interval from weaning piglets to fertilization. The gestation during is genetically determined and can not be influenced by common management of farms. Duration of breastfeeding is the concern of managers who are tempted to apply some or other of the operations early weaning of piglets. The interval from weaning to fertilization is the result of the interval from farrowing to first mating and fecundity rate of a monte. For the period in which the return in heat adult sow consumes without producing anything, many managers are willing to remove from sows effective that repeat heats even first back in heat. Less radical however, is their position on the interval from weaning to first mating, indicating that it is addressed in this paper. Any increase in the interval between farrowing show, the herd took the study, a delay in the absence of heat or farrowing absence. This interval weaning - fertilization - is conditioned by several factors, which we intend to identify in this paper. Older sows after weaning of piglets and gilts which replaced the reform, form the group of sows in preparation for mating. Preparing for mating consist of a supplementary feeding for older sows who has the first effect of body recovery after undergone effort during lactation. Recovery the body is required to stimulate release mechanisms of the maturation of ovarian follicles, mechanisms in type lactation period was blocked by the birth piglets and, not infrequently than weight loss maintained lactation over nutrient intake in the diet. The time interval required older sows to achieve body condition suitable for mating depends primarily on the loss of energy during lactation, the body reserves stored subcutaneously or intra-abdominal. Sometimes recovery body condition of sows exhausted insurance claims during the weaning and mating

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period an additional feeding (15 to 20 days) which corresponds to a gain of 750 to 900 g. The degree of impairment of body condition can be determined by the number of piglets weaned (indicator fertility), the duration of lactation, the milk production potential determined by genotype and errors of feeding sows. These errors are caused by deviation from the principle: the most economical feeding of sows is done when their body condition remained constant good.

2. Materials and methods

Researches were made in a number of 1230 deliveries by Large White breed (367 first farrowing sows - lot A, 863 older sows - lot B), in the complex selection and testing of S.C. SUINTEST S.A. FIERBINTI whose activity was monitored from weaning to fertilization achievement. The data was highlighted in the sheet breeding and selection of sows, which were noted all events are interested in breeding and production level. Sows came from the same unit, maintenance conditions were similar, and the results were interpreted on a case to highlight the frequency of sows and the average duration of weaning and next fertilization, weaning-fertilization interval in gilts according to age at first mating fertilize. The data obtained were processed statistically.

3. Results and discussion

The main indices of reproduction studied in this experiment was: the percentage fertilization of sows after weaning of piglets, the time duratin from weaning to mating fertilize sows and weaning-fertilization interval in gilts depending on age at first mating fertilize. Data on the frequency interval weaning - fertilization according to the sample batch size at weaning in Large White breed are presented in Table 1 and suggestive in Figure 1.

Table 1. Frequency weaning to fertilization interval in relation with the number of piglets weaned.

Piglets weaned	Classes interval (interval class c = 6 days)																Total	
	1 - 6		7 – 12		13 - 18		19 -24		25 - 30		31 - 36		37 – 42		over 42			%
	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	1-12
LOT A																		
7	23	35.9	24	37.5	9	14.1	6	9.4	-		2	3.1	-	-	-	-	64	73.4
8	18	38.3	13	27.6	9	19.2	-	-	-		-		3	6.4	4	8.5	47	63.3
9	24	25.0	22	22.9	18	18.8	19	19.8	6	6.2	-	-	3	3.1	4	4.2	96	47.9
10	19	20.8	31	34.1	8	8.8	8	8.8	8	8.8	3	3.3	6	6.6	8	8.8	91	50.5
11	10	14.5	18	26.1	7	10.2	14	20.3	3	4.3	4	5.8	3	4.3	10	14.5	69	41.8
Total	94	25.6	108	29.4	51	13.9	47	12.8	17	4.6	9	2.4	15	4.1	26	7.2	367	55.04
LOT B																		
7	85	54.8	38	24.5	10	6.4	11	7.1	4	2.6	3	1.9	-	-	4	2.7	155	79.3
8	98	53.8	57	31.4	9	4.9	9	4.9	2	1.1	2	1.1	3	1.7	2	1.1	182	85.2
9	109	51.6	56	26.6	11	5.2	18	8.5	7	3.4	7	3.4	1	0.4	2	0.9	211	78.2
10	122	53.3	65	28.3	15	6.6	18	7.9	4	1.7	2	0.9	1	0.4	2	0.9	229	81.6
11	41	47.7	25	29.0	10	11.7	6	7.0	3	3.5	-	-	-	-	1	1.1	86	76.7
Total	455	52.7	241	27.9	55	6.3	62	7.2	20	2.3	14	1.6	5	0.6	11	1.4	863	80.65
LOT A+B																		
7	108	49.3	62	28.4	19	8.7	17	7.7	4	1.8	5	2.3	-	-	4	1.8	219	77.6
8	116	50.6	70	30.6	18	7.9	9	3.9	2	0.9	2	0.9	6	2.6	6	2.6	229	81.2
9	133	43.3	78	25.5	29	9.4	37	12.1	13	4.2	7	2.3	4	1.3	6	1.9	307	68.7
10	141	44.1	96	30.0	23	7.2	26	8.1	12	3.8	5	1.6	7	2.2	11	3.4	320	74.1
11	51	32.9	43	27.7	17	11.0	20	12.9	6	3.9	4	2.6	3	1.9	11	7.1	155	60.6
Total	549	44.6	349	28.4	106	8.6	109	8.9	37	3.0	23	1.9	20	1.6	37	3.0	1230	73.0

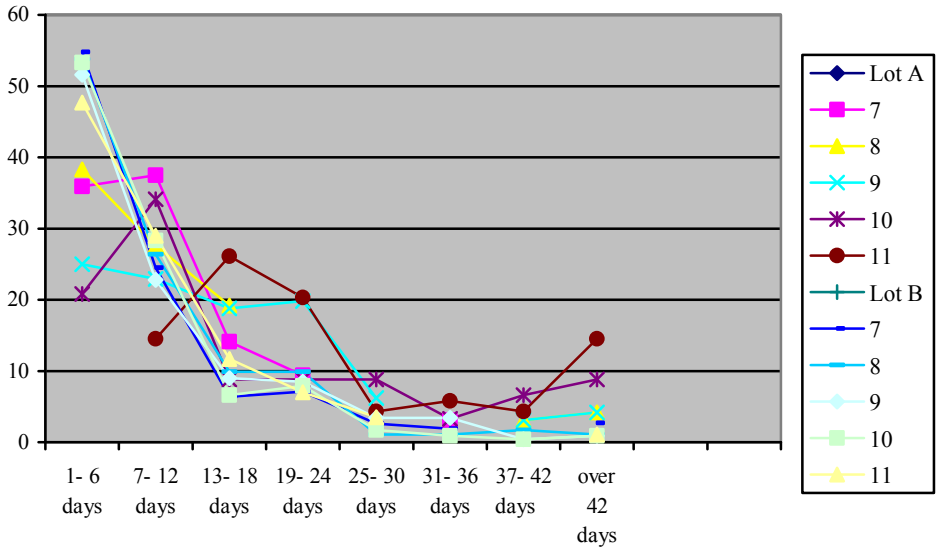

Figure 1. Frequency weaning-fertilization interval in Large White breed according to batch size at weaning

As outlined in Table 1 sows frequency depending on the batch size at weaning in older and first farrowing sows depending on the number of piglets weaned. The proportion of sows that showed heat and were fertilized, in the first 6 days after weaning of piglets, was 38.3% in first farrowing sows with 8 piglets weaned (average 25.6%) and 54.8% in older sows with a batch size of 8 piglets weaned (average 52.7%). Heats occurring just two days after weaning piglets, reaching its peak in the 6-7 days , after which there was a decline in the of input in heat. Sows after 6 -7 days from weaning are fecund get 2.4 birth per year. So to get 2.4 farrowing per year, we recommended that the weaning - fertilization interval is at least 6 days (lactation duration of 30 days). Grouping of sows in heat range from 25 to 42 days and over was 18.26% in first farrowing sows and 5.79% in older sows. There were no statistically significant differences in the frequency of sows during the first 6 days of weaning according to the size batch of piglets weaned in older sows, distinct differences are significant between first farrowing sows and older sows (30.61%) in favor of older sows. Differences emerged between the groups depending on frequency sows at which began genesis instinctively after weaning and especially those in large farms, arise from decreased sexual behavior, sometimes even clinically inaparent and others while being in heat, show few or even no reflection of immobility because of an inadequate diet in terms of quantity and quality during lactation, sow being much weakened. The period of recovery of body condition in this case being long [1]. The occurrence of oestrus in the interval between 1 to 12 days was 50.04 in first farrowing sows and 80.65% in older sows [2]. Differences by 30.61% between first farrowing sows and older sows is because gilts who was in second gestation, did not reach maturity development body, require more food and a comfort for to maintain whole reproductive function (increased growth in this category must be at least 34-35 kg) [3]. These differences are a strong argument to estimate the effect they have age sows on the frequency sows weaning-fertilization interval [4]. Measures should be taken to minimize the effect they have the period from weaning to mating fertilize in sows are: keeping sows in good corporal condition throughout the production, avoid starvation sows during lactation. If this situation arises, increase the amount of feed per day, to recovery body condition of the animal, preferably before mating. Feeding older sows with feed energy level high it will introduce at least 2-3 weeks prior to mating. In Table 2 are presented statistical parameters of the character weaning - fertilization interval in Large White breed, first farrowing sows and older sows, depending on
batch size at weaning.

Table 2. Dynamics analysis weaning-fertilization interval in Large White (first farrowing sows and older sows)

Lot size weaning	First farrowing sows (lot A)			Older sows (lot B)		
	n	$\bar{x}$	± s_x	n	$\bar{x}$	± s_x
7	64	10.55	0.854	155	9.70	0,897
8	47	14.32	1.899	182	8.47	0,688
9	96	15.41	1.049	211	9,41	0,606
10	91	17.65	1.449	229	8,54	0,537
11	69	20.49	1.822	86	8,99	0,843
Total	367	15.99	0.653	863	9.01	0,309
Significant (test F)	6.266			3.126		

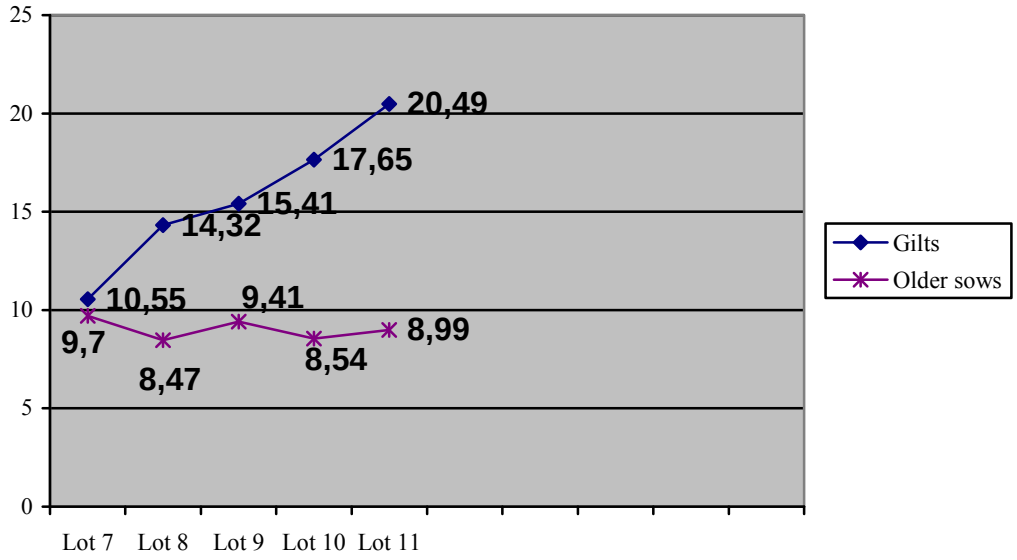

Figure 2. Duration in days weaning - fertilization interval in Large White breed according to batch size at weaning

The average weaning - fertilization interval was 15.99 days in first farrowing sows, while the older sows was 9.01 days (table 2, figure 2) results under whit speciality of literature [5]. Regarding batch size at weaning, there is a tendency of thinning of farrow under the influence of the number of piglets weaned when the weaning-fertilization interval is the largest (20.49 days) to older sows. This time from weaning to fertilization is high and has a negative influence on economic efficiency. The explanation is that the service period is extended by the number of days needed to recovery body condition, which entry into heat (time to recovery of body condition is between 20-30 days), so this category of sows the feeding and care conditions will be best [6]. Reduced feed consumption during lactation leads to weight low of piglets at weaning and a visible decrease in body weight of sows, which causes a delay in the onset of a new reproductive cycle and poor fertility results. From the analysis of this indicator, depending on age batch size at weaning sows was found that the time from weaning to estru - fertilization increased as the number of piglets weaned was higher. Increase the time interval between weaning and fertilization up, the negative effects by accumulating the number of unproductive days /sows and difficulties in planning matting , delivery rhythm is disturbed by increasing the proportion of turns cyclic or acyclic. To test the significance of differences between weaning – fertilization interval

depending on number of piglets weaned in sows queen of Large White breeds was used difference limit (Table 3).

Table 3.Testing significance of differences between weaning-fertilization interval according to the number of piglets weaned in sows queen of Large White breeds .

Lot	Piglets weaned	N	Average value for weaning-fertilization interval	s	± compared to control group	Difference limit (DL)		
						0,05	0,01	0,001
Lot A	7	64	10.55± 0,854	6.831	control group	-	-	-
Lot B		155	9.70± 0.897	11.167	control group	-	-	-
Lot A	8	47	14.32± 1.899	13.027	3.77^{ns}	4.080	5.363	6.851
Lot B		182	8.47± 0.688	9.286	-1.23^{ns}	2.215	2.910	3.718
Lot A	9	96	15.41 ± 1,049	10.276	4.86^{***}	2.646	3.478	4.442
Lot B		211	9.41 ± 0,606	8.796	-0.39^{ns}	2.119	2.784	3.557
Lot A	10	91	17.65± 1,449	13.827	7.1^{***}	3.297	4.32	5.534
Lot B		229	8.54± 0,537	8.130	-1.16^{ns}	2.048	2.692	3.438
Lot A	11	69	20.49± 1,822	15.131	9.94^{**}	7.93	10.42	13.317
Lot B		86	8.99± 0,843	7.819	-0.71^{ns}	2.413	3.171	4.051
Total A		367	15.93± 0,653	12.507	5.38^{***}	2.107	2.769	3.537
Total B		863	9.02± 0,309	8.387	-0.68^{ns}	1.858	2.442	3.119

The influence of batch size at weaning on weaning – fertilization interval is characterized statistically in Table 3, taking the witness first farrowing sows and older sows wean 7 piglets. For this indicator at first farrowing sows (lot A) differences from control are almost always very significant, which can not tell about older sows (lot B), where the differences are insignificant.

In Table 4 are presented the weaning fertilization interval in gilts according to age at first mating fertilize.

Table 4. Weaning - fertilization interval in gilts according to age at first mating fertilize.

Specification	Age at first mating fertile (days)					
	I 240 n = 207		II 241 – 270 n = 103		III 271 – 300 n = 57	
	$\bar{x}$	± $s_{\bar{x}}$	$\bar{x}$	± $s_{\bar{x}}$	$\bar{x}$	± $s_{\bar{x}}$
The average age at first mating fertile (days)	224.36	0.684	254.17	0.836	282.37	1.339
Weaning-fertilization interval (days)	15.94	0.896	13.79	0.934	19.77	1.982

Because older sows challenge the industrial growth was aimed to know the age at first mating fertile may be a cause of anestrus is introduced after first breastfeeding. Indeed gilts fitted to an aged between 271 to 300 days (table 4) have been the highest between weaning fertilization interval (19.77 days), with 5.98 days more than first farrowing sows that were fertile at an age ranging between 241 -270 days, results under whit literature speciality [7].

4. Conclusions

Frequency sows depending on the size of weaning – fertilization interval was different

between first farrowing sows and older sows, thus: in the first 12 days only 50% of first farrowing sows was made the second farrow, while percentage older in sows was 80.65%.

Largest interval between weaning - fertilization, depending on the batch size at weaning was recorded in the first farrowing sows which wean 11 piglets (20.49 days) and 9.70 days older sows which wean 7 piglets and the shortest interval is 8.47 days older sows (8 piglets weaned) and 10.55 days in first farrowing sows with 7 piglets weaned.

Interval weaning-fertilization at first farrowing sows is conditioned by the first mating fertilize age. Thus, gilts reached sexual maturity further to 241 to 270 days (average 254 days), presents the interval weaning – fertilization of 13.79 days. Animals were first mating fertilize have more than 270 days, the interval weaning – fertilization was 19.77 days.

Based on the results obtained is recommended that in elite units, to pay due attention to the selection decision attributes of reproduction, especially maternal breeds, parallel with the improvement of body condition in gilts, even in the second half of lactation, when the sow milk production decreases and as such allows recovery a good measure of body weakened. It is also necessary to removing the sows in the same environmental conditions register poor results in relation with a long weaning – fertilization interval.

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