RESEARCHES CONCERNING SWINE ARTIFICIAL INSEMINATION ECONOMIC EFFICIENCY IN A PRIVATE PRODUCTION UNIT

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Abstract

The present paper has proposed to analyze the economic results that lead to an economic efficiency assessment of artificial insemination service in a private production unit.

There were calculated technical indicators: total number of parturitions, fecundity index, artificial insemination/sow/year, pigs born alive/sow/year, pigs born alive/parturition, weaned pigs/parturition, weaned pigs/sow/year, and also the main economic indicators: cost/sow, cost/pregnancy, cost/weaned pig, cost/artificial insemination. The primary data were statistically remade and there were concluded the results.

Key words: artificial insemination, swine, reproduction indices

INTRODUCTION

Due to its biologic qualities, swine are one of the most important meat producers, assuring nowadays over 30% in the world consumption. The efforts of the whole world in meat production increasing are determined by the continuous higher necessity of assuring the animal origin products.

Thus, having in view the improvement of the reproductive characters, the artificial inseminations are applied on a larger scale, because they represent a technical procedure of high efficiency, using a low number of males but of a great value.

The productive level or the productive performances of pigs are the result of the interaction between their genetic potential and the environmental conditions which include the economic field conditions. As the manager knows some economic balances, he is able to combine the biological optimum and to place it near the economic one. This is a very important thing in the market economy, where a unit could easily enter in a financial collapse even it is perfect from the technical point of view.

MATERIAL AND METHOD

An animal species breeding profitability which give us necessary products for feeding, like swine breeding is supposed to obtain some superior productive parameters with a lower price. That is why the specialists in the field are preoccupied to find out some modern systems which assure the both desiderates.

The study in the present paper was carried out in a swine breeding unit, in the south of Romania, during four pregnancies, per 100 sows. Analyze was made by the following stages, systemized by: planning of the workshops; picking up the necessary information; checking of the recorded data; data processing; results interpretation; calculation of the main technologic and economic indicators; drawing up the conclusions; establishing the measures for the activity improvement.

RESULTS AND DISCUSSIONS

The results of the researches in the present paper are shown in six tables and five charts. The technologic indicator the number of artificial insemination for one pregnancy is synthetically presented in table 1 and chart 1. It is noticed the recording of the mean value of 1,7 artificial inseminations for one pregnancy, with values which vary between 1,1 in the fourth pregnancy and 2,31 in the second one.

Table 1. Number of artificial insemination for one pregnancy

| No.	Average+/- error	Standard deviation	Variability coefficient
Pregnancy 1	1.98 +/- 0.15	1.53	17.47
Pregnancy 2	2.31 +/- 0.16	1.56	17.74
Pregnancy 3	1.49 +/- 0.58	1.16	18.08
Pregnancy 4	1.10 +/- 0.17	0.33	13.30
Mean	1.70 +/- 0.26	1.14	19.39
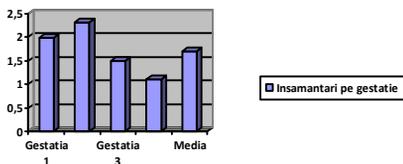
The prolificacy index is a very important technologic indicator for a swine unit profitability, representing the total number of piglets born at a calving divided at the total number of females which gave birth.

In the studied livestock, the mean value of this index is 9,87, with limits between 9,23 in the first pregnancy and 10,55 in the second one, as it may notice in the data shown in table 2 and chart 2 . The special literature quoted in this case values around6 and 12 piglets [5].

Table 2. Prolificacy index

No.	Average+/- error	Standard deviation	Variability coefficient
Pregnancy 1	9.23 +/- 0.14	1.45	15.69
Pregnancy 2	10.55 +/- 0.18	1.75	16.63
Pregnancy 3	9.60 +/- 0.17	1.66	17.27
Pregnancy 4	10.10 +/- 0.17	1.86	18.42
Mean	9.87 +/- 0.28	1.68	17.00
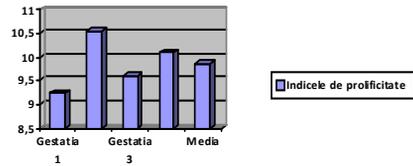
The suckling period is the period from calving to piglets weaning [2,3,4]. In table 3 and chart 3 are presented the values of the suckling period length in the studied swine livestock. We may notice that the mean length of the suckling period is 27,72 days, with strict limits between 25,79 days in the second suckling period and 29,52 days in the first suckling period. These values are placed at the best values level from the technologic point of view in this species. [5].

Table. 3. Mean length of suckling period

No.	Average+/- error	Standard deviation	Variability coefficient
Pregnancy 1	29.52 +/- 0.60	5.99	20.31
Pregnancy 2	25.79 +/- 0.40	4.05	15.69
Pregnancy 3	27.02 +/- 0.06	1.92	7.11
Pregnancy 4	28.56 +/- 0.05	1.27	4.46
Mean	27.72 +/- 0.27	3.30	11.89
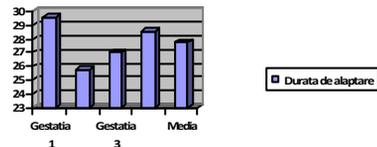
In table four and chart four are presented the values of the service-period recorded in the studied livestock. It is remarked the mean value of the service period length of 34,58 days, with limits which varied between 31,49 days after first pregnancy and 36,60 days after the third pregnancy.

Table 4. Mean length of service-period

No.	Average+/- error	Standard deviation	Variability coefficient
Pregnancy 1	35.15 +/- 0.87	8.68	24.68
Pregnancy 2	31.49 +/- 0.55	5.50	17.47
Pregnancy 3	36.60 +/- 0.09	3.48	9.51
Pregnancy 4	35.08 +/- 0.06	2.02	5.76
Mean	34.58 +/- 0.39	4.92	14.35
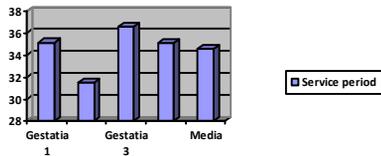
The calving interval represents the interval between two succesive calvings [1,2,4]. In table 5 and chart 5 it is presented the value of this indicator for the analyzed livestock. The highest value of the calving interval was recorded between the first and the second calving as 182,34 days, but the lowest value between the second and the third calving. The mean value of the calving interval was 166,70 days, this value being considered optimum from the technologic point of view, in the special literature, there were quoted 150-181 days in intensive-industrial raised swine.

Table 5. The main value of the calving interval

No.	Average+/-error	Standard deviation	Variability coefficient
Pregnancy 1	182.34 +/- 18.75	187.46	10.81
Pregnancy 2	162.63 +/- 16.89	168.91	13.86
Pregnancy 3	153.83 +/- 0.71	157.20	12.19
Pregnancy 4	168.02 +/- 1.23	174.99	14.15
Mean	166.70 +/ 9.39	172.14	13.25
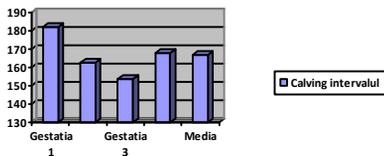
In table six it is shown the value of the main economic indicators achieved in the studied unit. The mean values of these indicators were presented in euro because the economic results of this unit could be compared with the ones of other farms in European Union, this unit being a multiplication genetic material of PIC Company. Thus, it may notice the great value of the weaned piglet, of almost 25 euro. The cost per one artificial insemination was only 1,40 euro.

Table 6. The values of the economic indicators (Euro)

No.	Indicator	The average value obtained in case of using A.I.
1.	Cost/sow	604,4
2.	Cost/pregnancy	335,8
3.	Cost/weaned pig	24,8
4.	Cost/ A.I.	1,40

CONCLUSIONS

1. The analyze of the technical indicators presents their evolution during the fourth pregnancies of the studied livestock. It is remarked the special performances obtained following the second pregnancy.

2. Even there are valor differences between the main technical parameters in this unit, these differences are not too large, so it may conclude that the reproduction activity is good, very well managed.

3. The reproduction costs analyze in a production unit represents a real need for the good development of the managerial activity, because it is a major element to calculate the farm supplies.

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