SEASON AND PARITY INFLUENCE UPON WEAN-TO-SERVICE INTERVAL TO SOWS WEAN AFTER 28 DAYS OF LACTATION

INFLUENTA SEZONULUI SI A PARITATII ASUPRA INTERVALULUI INTARCARE-ESTRU, LA SCROAFE INTARCATE DUPA 28 DE ZILE DE ALAPTARE

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Abstract. *The researches were carried out with the goal to see the influence of season and parity of the sows wean upon wean to estrus interval. As we could see from the trial, the proportion of first parity sows showing estrus in the first 7 days after weaning was the lowest (85.73% average per year) comparing to the sows parity 2 to 6 (91.46% to 93.85% average per year). Regarding the seasonal influence, we can say that summer is the season that has the highest negative influence upon wean to estrus interval; respectively, only 90.45% of all the animals show estrus in the summer versus 92.49% in the spring. Also, first parity animals have the lowest rate of showing estrus in the summer and autumn comparing to spring and winter. We can see that the proportion of animals showing estrus is the smallest in the summer (90.45%), increasing in autumn (90.92%) and winter (91.86%) and it is maximum in spring (92.49%).*

Key words: *wean, estrus, interval, sows, primiparous, pluriparous, season, lactation*

INTRODUCTION

Many factors influence the overall reproductive efficiency of a swine operation. One example is the average number of sow non-productive days (NPDs).

NPDs accumulate for sows that are not pregnant or lactating. In other words, sows cannot be considered "in production" unless they are carrying or nursing a litter. For reproductive efficiency to be maximized, NPDs must be minimized **(1)**.

From a management perspective, weaning-to-estrus intervals present the first opportunity for producers to evaluate how well sows have recovered from their previous pregnancy.

It also is a good opportunity to determine how well management during lactation has aided this process.

The general assumption is that if sows return to estrus within eight days post weaning, then their recovery is complete. If the rebreeding interval is longer than this, then perhaps their recovery wasn't quite finished when weaning occurred and their subsequent reproductive performance may be compromised.

One of the greatest influences on weaning-to-estrus interval is the management of sows during lactation.

During this time, the reproductive organs of sows have a chance to recover from their previous pregnancy. It is well established that levels of reproductive hormones in the brain that stimulate estrus and ovulation are very low immediately after farrowing **(2, 3)**.

MATERIAL AND METHODS

Biological material was represented by 13016 sows that were studied during one year. Parity distribution was: 21.91% of the sows were first parity; 23.44% of the animals were second parity; 17.42% of the sows were third parity; 16.77% of the animals were fourth parity; 13.28% of the animals were fifth parity and 7.18% of the animals were sixth parity.

The sows were weaned after 28±09 days of lactation. The animals were feed similar, but the feed intake was different during year, respectively, lower during summer.

RESULTS AND DISCUSSIONS

In table 1 is presented the evolution of the proportion of sows in estrus in interval 1 to 7 days after weaning.

Table 1

Proportion of sows in heat in the first 7 days after weaning

Specification	Parity 1	Parity 2	Parity 3	Parity 4	Parity 5	Parity 6
Spring	90.23%	93.74%	91.37%	91.33%	95.00%	93.26%
Summer	82.69%	89.28%	92.37%	91.65%	92.23%	94.48%
Autumn	80.05%	91.04%	92.18%	93.74%	94.02%	94.47%
Winter	89.94%	93.90%	89.93%	92.11%	92.08%	93.21%
Average/year	85.73%	91.99%	91.46%	92.21%	93.33%	93.85%

As we can see from table above the proportion of animals in heat in the first 7 days after weaning it is variant between the parities. The proportion of sows in estrus in the first 7 days after weaning is 90.23% in spring; 82.69% in summer; 80.05% in autumn and 89.94% in winter. The average proportion of first parity sows showing estrus in the first 7 days after weaning is 85.73% during the entire year.

Regarding parity 2 sows: 93.72% show estrus in spring; in summer 89.28%; in autumn 91.04%; in winter 93.90%. The average of second parity sows showing estrus in the first 7 days after weaning is 91.99% during the entire year.

The proportion of sows in heat in the first 7 days after weaning, for animals parity 3 is: 91.37% in the spring; 92.37% in the summer, 92.18% in the autumn and 89.93% in the winter.

The average is 91.46% of parity 3 sows show estrus in the first 7 days after weaning.

Fourth parity animals show estrus signs in proportion of 91.33% in the spring; 91.65% in the summer; 93.74% in the autumn; 92.11% in the winter. Overall, the proportion of showing estrus was 92.21% during the entire year.

Parity five and six animals have similar proportion of showing estrus. During one year were in heat 93.33% of the fifth parity sows and 93.85% of the sixth parity animals.

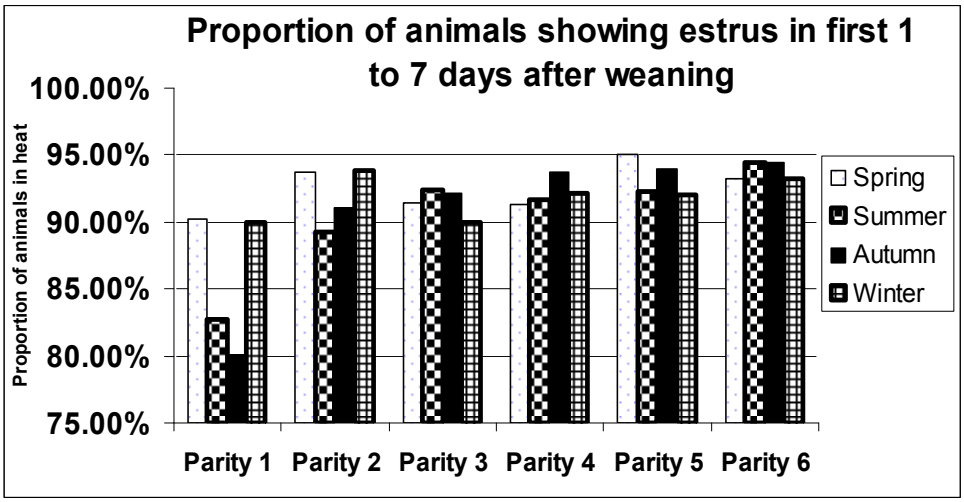


Chart 1. Proportion of animals in estrus in the first 1-7 days after weaning, according to parity and season

In charter above is presented the proportion of animals in heat in the first 7 days after weaning, in the four seasons, by parity.

In the next table will be presented the total proportion of animals in heat in the first 7 days after weaning, according to the season, not tacking in consideration the parity.

Table 2

Proportion of sows in heat in the first 7 days after weaning, in different seasons

Specification	Sows in heat in the first 1-7 days after weaning	Sows in heat after 7 days from weaning
Spring	92.49%	7.51%
Summer	90.45%	9.55%
Autumn	90.92%	9.08%
Winter	91.86%	8.14%
Total	91.43%	8.57%

Regarding the seasonal influence, as we can see in table above, summer is the season that has the highest negative influence upon wean to estrus interval; respectively, only 90.45% of all the animals show estrus in the summer versus 92.49% in the spring.

Also, first parity animals have the lowest rate of showing estrus in the summer and autumn comparing to spring and winter.

We can see that the proportion of animals showing estrus is the smallest in the summer (90.45%), increasing in autumn (90.92%) and winter (91.86%) and it is maximum in spring (92.49%).

According to some authors the sows that are consuming low amounts of feed during lactation have a delayed return to estrus after weaning. This could be one reason for low proportion of returning to estrus during summer **(1)**.

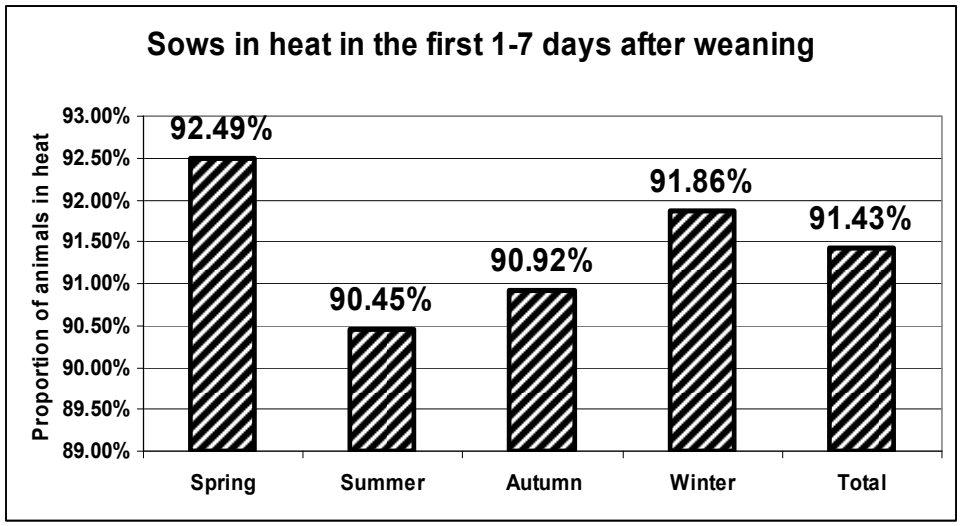


Chart 2. Proportion of sows in heat in the first 7 days after weaning, in different seasons

Studies indicate that the weaning-to-estrus interval decreases as the weaning age increases. Sows weaned with fewer than 10 days of lactation demonstrate a much longer weaning-to-estrus interval, and the intervals are shortest for sows weaned between 3 and 4 weeks.

A greater percentage of sows that lactate for more than 20 days return to estrus by day 7 than sows that lactate for 14 to 15 days.

Primiparous sows are more susceptible than multiparous sows to the increased wean-to-estrus interval **(3, 4)**.

CONCLUSIONS

- The proportion of first parity sows showing estrus in the first 7 days after weaning was the lowest (85.73% average per year) comparing to the sows parity 2 to 6 (91.46% to 93.85% average per year).
- Regarding the seasonal influence, we can say that summer is the season that has the highest negative influence upon wean to estrus interval; respectively, only 90.45% of all the animals show estrus in the summer.
- Spring is the season when the highest proportion of animals return to estrus in the first 7 days after weaning, respectively 92.49%.
- As we've pointed out, management is the key to maximizing wean-to-estrus intervals. Keeping the needs of the sow herd as a top priority will help make the necessary changes to improve this important production parameter.

REFERENCES

1.ESTIENNE, M., HORSLEY, R., HARPER, A., (2003), *Low Feed Intake During Lactation Negatively Impacts the Weaning-To-Estrus Interval in Sows*, http://www.sites.ext.vt.edu/newsletter-archive/livestock/aps-03_10/aps-266.html

2.FLOWERS, W.L., (2007), *Watch Weaning-to-Estrus Intervals*, http://www.benchmark.farms.com/WatchWeaning_to_Estrus_Intervals.html

3.PETROMAN I., PETROMAN CORNELIA, BRAD I., (2005) *On the development of conception products during gestation period in Large White sows exploited in intensive systems,* Jubilee science

conference with international participation State-of-the-art and problems of agricultural science and education 19 – 20 octombrie Plovdiv, ISBN 954-517-002-6

4. **PETROMAN I., PETROMAN CORNELIA, IANCU T, (2005)**, *On the distribution of conception products in uterus branches in Large White sows depending on age and gestation period,* Jubilee science conference with international participation State-of-the-art and problems of agricultural science and education 19 – 20 octombrie Plovdiv,

ISBN 954-517-002-6

5. **SEE, T., (2006),** *Effect Of Weaning Age on Sow Herd Performance*, http://www.thepigsite.com/articles/1/pig-health-and-welfare/1742/effect-of-weaning-age-on-sow-herd-performance

6.http://www.livestocktrail.uiuc.edu/swinerepronet/paperDisplay.cfm?ContentID=6256

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