OPTIMAL MODEL INSEMINATION SOWS EXPLOITED IN SMALL AND MEDIUM FARMS

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Abstract: The optimal time for inseminating breed sows can be chosen if we know well how to detect mating sows, taking into account the fact that ovulation takes place 30-36 hours after the moment the syndrome of immobility appeared, and that the favourable interval for the ovule to get fecundated is between 1 and 6 hours starting from the moment of follicular dehiscence. This is why it is imperative to practice a farm management focused on inseminating. Birth rate percentage in sows, no matter their age, is similar if the duration between the inseminations is of 5 hours or of 15 hours. A longer duration between inseminations (17 hours) leads to a decrease in birth rate up to 77.2% in primiparous and up to 75.2% in multiparous sows.

Key words: breed sows, oestrus, optimal time for insemination, interval between inseminations, and birth rate

INTRODUCTION

The number of fat pigs obtained from a sow per year depends on the breed, on the genes of the two partners, on the combination between genes, and on the management of the farm where the animals are bred.

There are cases in which all the desiderata are achieved, and yet the production is diminished if the time of the mounting of oestrus females is not properly chosen. This optimal time can be properly chosen only if females in oestrus are identified by observing the farm technology and if we take into account that ovulation takes place 30-36 hours after the appearance of the immobility syndrome and that the best interval for the fecundation of the egg is between 1-6 hours from the moment of the follicular dehiscence.

Together with these biological features one should have in mind that on farms with large numbers of animals the working programme is between 7 a.m. and 4 p.m. All females in oestrus during this interval can be easily identified and mounted and the optimal time can be properly chosen. After the working programme is over, one cannot identify the time the oestrus appears between 4 p.m. and 7 a.m., which makes it impossible to choose the optimal time for the mounting, with a negative impact on the number of piglets per sow per year and, implicitly, on the number of fattening pigs for slaughtering per year, with serious impacts on production.

MATERIAL AND METHOD

In order to identify the optimal time for mounting Hampshire sows and to find the best correlation between the moment the mounting is being done and the oestrus depending on the working time on the farm (7 a.m. - 4 p.m.) we carried out research on sows of different ages after the following scheme in order to get the most favourable birth rate percentage.

We grouped the sows in three groups, as follows;
- the 1\(^{st}\) lot composed of females in oestrus identified in the morning and mounted the same day, ensuring an interval of 0 to 5 hours between mountings;
- the 2\(^{nd}\) lot composed of females in oestrus identified in the afternoon and mounted the same day with 16 to 17 hours between the mountings;
the 3rd lot composed of females in oestrus identified in heat and mounted two
different days with 15-hours between the mountings.

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RESULTS AND DISCUSSION

Results obtained and expressed as birth rate percentage (mated sows vs. farrowed
sows) are shown in Table 1.

<table>
<thead>
<tr>
<th>Animal category</th>
<th>1st lot Mated females</th>
<th>1st lot Farrowed females</th>
<th>Birth rate (%)</th>
<th>2nd lot Mated females</th>
<th>2nd lot Farrowed females</th>
<th>Birth rate (%)</th>
<th>3rd lot Mated females</th>
<th>3rd lot Farrowed females</th>
<th>Birth rate (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Primiparous</td>
<td>25</td>
<td>20</td>
<td>80.0</td>
<td>32</td>
<td>26</td>
<td>81.2</td>
<td>54</td>
<td>39</td>
<td>72.2</td>
</tr>
<tr>
<td>Adult s 2-3 births</td>
<td>50</td>
<td>44</td>
<td>88.0</td>
<td>72</td>
<td>63</td>
<td>87.5</td>
<td>162</td>
<td>127</td>
<td>78.4</td>
</tr>
<tr>
<td>Adult s 4-6 births</td>
<td>69</td>
<td>55</td>
<td>79.7</td>
<td>81</td>
<td>61</td>
<td>75.3</td>
<td>168</td>
<td>121</td>
<td>72.0</td>
</tr>
<tr>
<td>Total</td>
<td>119</td>
<td>99</td>
<td>83.2</td>
<td>153</td>
<td>124</td>
<td>81.0</td>
<td>330</td>
<td>248</td>
<td>75.2</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Difference</th>
<th>Absolute</th>
<th>Relative (1)</th>
<th></th>
<th>Absolute</th>
<th>Relative (2)</th>
<th></th>
<th>Absolute</th>
<th>Relative (3)</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>94</td>
<td>79</td>
<td>3.2</td>
<td>121</td>
<td>98</td>
<td>0.2</td>
<td>276</td>
<td>209</td>
<td>3.0</td>
</tr>
</tbody>
</table>

Birth rate in sows no matter the number of births is similar if the period between
the two mountings is between 5 and 15 hours, a longer period resulting in a diminution
of the birth rate to 72.2% in primiparous or to 75.2% in multiparous. We can see that females
at the end of the exploitation period the 5 to 6 births means a lower birth rate than in those
during maximum exploitation (1-4 births) because of the numerous reproduction troubles
and of the physiological worn out accumulated over intensive exploitation periods. In order
to reach performing exploitation indices we think it is necessary to develop a schedule for
the mounting of females mainly during the working programme (7 a.m. to 4 p.m.) with an
interval of 5 to 15 hours between mountings.

CONCLUSIONS

Achieving good reproductive performances supposes mounting the mating
females at intervals of 5 to 15 hours between the mountings observing the programme and
the management of the farm in the field of identifying and mounting mating females, when
there are the best values of the birth rate in females with 1 to 4 births. Any delay of the
interval between two mountings (17 hours) results in a diminution of the birth rate no matter
the age of the animals (1 to 4 births). Poor results can also be obtained in the case of
females with 5 to 6 births in which there are lower values of this index (72.2 to 75.2%) because of some reproduction troubles and of the physiological worn out accumulated over the long exploitation period.
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