PROCEEDING

International Seminar
A Role of The Veterinarian on The Global Health Challenges

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Institut Pertanian Bogor
and
Universitas Airlangga
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THE ESTRUS PERFORMANCE OF CROSS-BRED COWS IN NANGGULAN SUB-DISTRICT, KULONPROGO DISTRICT

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ABSTRACT

The present research aims to study estrus performance in cross-bred cows which are cows as result of a cross between Ongole (PO) and Simmental (SIMPO) and Ongole and Limousine (LIMPO). The research used 30 beef cows that contain of 10 PO cows, 10 SIMPO cows, and 10 LIMPO cows. This research used a survey method by direct observation on the cows and an interview to the farmers. The data collected includes the cows breed, the age of puberty, estrus duration, service per conception, as well as other data supporters such as reproductive management, feeding and drinking. The cow observation conducted during three cycles of estrous. The result indicates the age of puberty of LIMPO and SIMPO tend to be faster than PO. The observations made during the estrous cycles showed that estrus duration (1st, 2nd, 3rd) was longer on LIMPO and SIMPO than PO (18, 33,30 hours; 35, 24, 16 hours; and 16,8, 20, 18 hours respectively). Service per conception in PO, LIMPO, and SIMPO were $1.8 \pm 1.2; 1.5 \pm 0.5$; and $2.2 \pm 0.9$ respectively. SIMPO need more services to produce pregnancy when compare to LIMPO and PO.

Key words: estrus, cross-bredcows

INTRODUCTION

In Indonesia, there are several breed of beef cattle, such as local breed, imported cattle, and cross-bred cattle obtained from artificial insemination (AI) program. Quality improvement efforts of local cows (especially PO) one of which by crossbreeding with Simmental or Limousine breed in order to produce high quality beef cattle called SIMPO (a cross simmental and PO) and LIMPO (a cross limousine breed and PO). The selection of that breed is considered appropriate since he is a beef cattle with daily average gain is 1.2-1.4 kg/day. The genetic improvement of farm animals will be success by maintaining the reproductive rate. Performance of reproductive could be indicated by some parameters such as aged of puberty, Calving Interval (CI), Service per Conception (S/C) and Non-Return Rate (NRR). Reproductive performance of beef cattle in Indonesia was generally low [1]. In difficult conditions of feed resources, cows results from a cross to be skinny, the body condition become worse and result in decreased reproductive performance, such as high in S/C, indicating less successful artificial insemination. In good maintenance, the reproductive performance of crossbreeding cows could be good. On the other hand, in local cows, insufficient of feed, it only influence the BCS, but they still show estrus signs, ovulate and could be pregnant when inseminated. Based on the explanation above, we wished to know the estrus performance especially in PO cattle compared to SIMPO and LIMPO cattle.

MATERIALS AND METHODS

The research used 30 beef cows that contain of 10 Ongole (PO) cows, 10 SIMPO cows, and 10 LIMPO cows. The cow ages were between 4-7 years. The cows used were beef cattle belongs to the livestock group Majusari in Nanggulan Sub-district, Kulon Progo District, Yogyakarta Special Region.

This research used a survey method by direct observation on the cows and an interview to the farmers. The data collected includes the cows breed, the age of puberty, estrus duration, service per conception, as well as other data supporters like reproductive management, feeding and drinking. The cows observation conducted during three cycle
of estrous including estrus signs and duration. The data obtained were then analyzed descriptively.

RESULTS

The observations in the field note that cattle at Livestock Group, Majusari, Nanggulan, Kulon Progo Regency is kept in the traditional farm. The enclosure is made of wood and bamboo, some of the tile roof, zinc or asbestos. Ground floor enclosures in general, but some of them are plastering cement. Feed given is a mixture of grasses and legumes, by administering done 2-3 times a day. The cattle were lack of exercise because they mainly kept in barn all day. Body condition score (BCS) of PO, SIMPO and LIMPO cattle were 2-2.75, 2.8-3,12, and 2.5-3 from the 1-5 scales (Table I.).

Table I. Mean of estrus duration in PO, LIMPO and SIMPO in Nanggulan sub-district, Kulon Progo district.

<table>
<thead>
<tr>
<th>PARAMETER</th>
<th>PO</th>
<th>LIMPO</th>
<th>SIMPO</th>
</tr>
</thead>
<tbody>
<tr>
<td>BCS</td>
<td>2-3</td>
<td>2.5-3</td>
<td>2.8</td>
</tr>
<tr>
<td>Estrus duration I (hours)</td>
<td>16.8</td>
<td>18</td>
<td>35.3</td>
</tr>
<tr>
<td>Estrus duration II (hours)</td>
<td>20</td>
<td>33</td>
<td>24</td>
</tr>
<tr>
<td>Estrus duration III (hours)</td>
<td>18</td>
<td>30</td>
<td>16</td>
</tr>
</tbody>
</table>

In this research, estrus signs were not obviously observed in PO, SIMPO, and LIMPO, there were no redness or swollen of their vulva. The observations made during 3 cycles of estrous showed that estrus duration as longer on LIMPO and SIMPO than PO respectively 18, 33,30 hours; 35, 24, 16 hours; and 16.8, 20, 18 hours (Table I.). The estrus duration of SIMPO and LIMPO varies greatly in each cycles, it’s might be the problem to get inseminate in time. It shown by S/C of PO, LIMPO, and SIMPO 1.8 ± 1.2; 1.5 ± 0.5; and 2.2 ±0.9 respectively (Table II.). The success of the implementation of artificial insemination programs one of which is determined by the precision of estrus detection in order to inseminate at the proper time [2].

Table II. Reproductive parameters in PO, LIMPO and SIMPO in Nanggulan sub-district, Kulon Progo district.

<table>
<thead>
<tr>
<th>PARAMETER</th>
<th>PO</th>
<th>LIMPO</th>
<th>SIMPO</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ages (years)</td>
<td>5 -12</td>
<td>2 - 7.5</td>
<td>4.8 ± 1.2</td>
</tr>
<tr>
<td>Puberty (months)</td>
<td>22.8 ± 2.4</td>
<td>20.6 ± 3.8</td>
<td>17.4 ± 3.3</td>
</tr>
<tr>
<td>First mating (months)</td>
<td>23 ± 2</td>
<td>20.6 ± 3.8</td>
<td>18.5 ± 3.2</td>
</tr>
<tr>
<td>S/C</td>
<td>1.8 ± 1.2</td>
<td>1.5 ± 0.5</td>
<td>2.2 ± 0.9</td>
</tr>
</tbody>
</table>

The performance of reproduction in PO and LIMPO were only slightly different, but it differed greatly if compared with SIMPO. The average age of puberty in PO 22.8 ± 2.4 months, SIMPO 17.4 ± 3.3 months, and LIMPO 20.6 ± 3.8 months (Table II). There are several factors influence age of puberty such as breed, climate, management, and feeding [3]. Puberty will be achieved later in tropical climate compared to subtropical climate [4].

Management influencing will be seen when cattle kept in barn all day, they will reach puberty later than the cattle which isout. Another factor that caused LIMPO and SIMPO reached puberty earlier compared to PO is that their body weight raised faster.

CONCLUSIONS

The puberty age of LIMPO and SIMPO tend to be faster than PO, with S / C of LIMPO lower than PO and SIMPO. Estrus duration of LIMPO and SIMPO longer than PO. Based on the estrus duration in LIMPO and SIMPO varying greatly hence advisable to conduct similar study with more cattle involves so that it result will describe the performance of reproductive more accurate.

REFERENCES

