PROCEEDING

The Third APIS – ARCAP 2016
The 3rd Animal Production International Seminar
The 3rd ASEAN Regional Conference on Animal Production

Enhancing Synergistic Roles of Stakeholders for Development of Sustainable Livestock Production

Batu, Indonesia, October 19-21, 2016

Editors:
- Dr. Ir. Marjuki, M.Sc. (Brawijaya University, Indonesia)
- Aswah Ridlowi, S.P., M.Sc. (Brawijaya University, Indonesia)
- Firman Jaya, S.Pt., MP. (Brawijaya University, Indonesia)
- Prof. Dr. Ir. Trinil Susilowati, MS. (Brawijaya University, Indonesia)
- Assoc.Prof. Dr. Sunthorn Wittayakun (Rajamangala University of Technology Lanna, Thailand)
- Cynthia D.K. Bottema, Ph.D. (University of Adelaide, Australia)
- Prof. Dr. Abdul Razak Alimon (Universiti Putra Malaysia, Malaysia)
- Prof. Liang Chou Hsia, Ph.D. (National Pingtung University of Science and Technology, Taiwan)
- Prof. A.K. Thiruvenkadan, M.V.Sc., Ph.D. (Tamil Nadu Veterinary and Animal Sciences University, India)
Enhancing Synergistic Roles of Stakeholders for Development of Sustainable Livestock Production

Proceeding
The 3rd Animal Production International Seminar and The 3rd ASEAN Regional Conference on Animal Production
(3rd APIS & ARCAP 2016)
Batu, Indonesia, October 19-21, 2016

Editors:
– Dr. Ir. Marjuki, M.Sc. (Brawijaya University, Indonesia)
– Aswhah Ridlowi, S.Pt., M.Sc. (Brawijaya University, Indonesia)
– Firman Jaya, S.Pt., MP. (Brawijaya University, Indonesia)
– Prof. Dr. Ir. Trinil Susilowati, MS. (Brawijaya University, Indonesia)
– Assoc.Prof. Dr. Sunthorn Wittayakun (Rajamangala University of Technology Lanna, Thailand)
– Cynthia D.K. Bottema, Ph.D. (University of Adelaide, Australia)
– Prof.Dr. Abdul Razak Almon (Universiti Putra Malaysia, Malaysia)
– Prof. Liang Chou Hsia, Ph.D. (National Pingtung University of Science and Technology, Taiwan)
– Prof. A.K.Thiruvendad,M.V.Sc., Ph.D. (Tamil Nadu Veterinary and Animal Sciences University, India)

Organized by:
Faculty of Animal Husbandry, Brawijaya University, Indonesia

In collaboration with:
Brawijaya University, Indonesia
Indonesian Society of Animal Science
Universiti Putra Malaysia, Malaysia
Malaysian Society of Animal Production
Rajamangala University of Technology Lanna, Thailand

Published by:

UB Press
Jl. Veteran 10-11 Malang 65145 Indonesia
Telp: 62-341-554357, Fax: 62-341-554357
E-mail: ubpress@ub.ac.id or ubpress@gmail.com
Website : http://www.ubpress.ub.ac.id
ISBN: 978-602-432-017-1
xxi +751 pp, 19 cm x 26 cm
© UB Press - All Right Reserved.
Preface

Following the success of the First and Second Animal Production International Seminar (1st and 2nd APIS) held in 2010 and 2013, respectively, it has been held successfully a Collaborative Seminar of The 3rd Animal Production International Seminar and The Third ASEAN Regional Conference on Animal Production (3rd APIS & ARCAP 2016 Conference) in the Shining City of Batu, East Java Province, Indonesia from 19 to 21 October 2016 with the theme of Improving the Synergistic Roles of Stakeholders for Development of Sustainable Livestock Production. More than 150 Abstract and papers have been presented and discussed during the seminar by either keynote speakers or participants from different countries. The papers cover animal production and nutrition, animal reproduction and breeding, animal health and veterinary, animal products technology, as well as social, economy, and animal production systems.

Full papers of this seminar are published in this proceeding. It is hoped that this proceeding would provide valuable information and contribution for readers in improving the productivity and sustainability of livestock production.

To follow up the seminar and for regular and continuous discussion on the related aspects of sustainable livestock production development, it is the committee’s great honours and pleasures to inform that The Fourth Animal Production International Seminar (4th APIS) will be held in 2019 and to invite again the participants (academics, scientist, practitioners, decision maker on livestock production as well as industries and government) to attend and actively support for the next success of the next APIS seminar.

Malang, October 22, 2016

Editors
The Effect of Phytase Supplemented Virgin Coconut Poonac on Performance And Carcass Quality of Broiler Chicken
Kularatne R. M. S. S. A. and Jayaweera B. P. A.

Effect of Mannase Enzyme as A Feed on Percentage Carcass, Abdominal Fat and Internal Organ of Broiler Chickens
Yuli Frita Nuningtyas, Osfar Sjojfan, Nourma Afdilla Hasan, and Eko Widodo

Enzyme Activities and Retention of Ca and P of the Small Intestinal Digesta of Broilers Fed Papua Foxtail Millet Containing Feed
Siska Tirajoh, Osfar Sjojfan and Eko Widodo

Effect of Using Probiotic Powder as Feed Additive on Carcass Quality Duck
Osfar Sjojfan, M. Halim Natsir and Tri Ardyati

Poster Presentation - Forages and Treatments
Local Desmanthus Virgatus, Potential Species for Beef Cattle Stall Feeding And Grazing in Dryland and Dry Climate of East Nusa Tenggara, Indonesia
Debora Kana Hau and Jacob Nulik

Productivity of Herbaceous Legume in Dry Land Area of East Nusa Tenggara
Sophia Ratnawaty, Hartutik, Siti Chuzaemi

Effect of plant growth regulator with activated Carbon MS Medium on Growth of Napier Grass (in vitro)
Mansyur, Iin Susilawati, Anas, dan Ali Husni, Pancadewi MHKS

Poster Presentation - Animal Reproduction and Breeding
Sexual dimorphism and identification of single nucleotide polymorphism of growth hormone gene on Muscovy duck
Ismoyowati, Purwantini D, Mufti M, Tugiwanti E

Reproductive Performances of Aceh Cows Kept by Farmers in Aceh Province
I Gede Suparta Budisatria; Tri Satya Mastuti Widi, Endang Baliarti, Hendra Koesmara, Alek Ibrahim

Sperm Quality of Different Breeds of Rabbits Available in Indonesia
Bayu Dewantoro P Soewandi, Y.C. Raharjo and Mudawamah
Poster Presentation – Animal Reproduction and Breeding

Reproductive Performances of Aceh Cows Kept by Farmers in Aceh Province

I Gede Suparta Budisatria; Tri Satya Mastuti Widi, Endang Baliarti, Hendra Koesmara, Alek Ibrahim

Faculty of Animal Science, Universitas Gadjah Mada, Yogyakarta
Corresponding author: budisatria@ugm.ac.id

Abstract
The study was conducted to identify management and reproductive performances of Aceh cows kept by farmers in three different sub-districts of Aceh Province. A total of 162 farmers and their cows in three different sub-district were interviewed and measured. The interviews were consisted of reproduction management done by farmers while measured were conducted on reproductive performances of Aceh cows. The result showed that majority of farmers (47.22%) had a good performance on heat detection, and mostly (70.9%) apply natural mating method. Weaned was done after more than 8 months. Post partum estrus and calving intervals was significantly differs amongst sub-district, cows kept by farmers in Nisam sub-district had the shortest post partum estrus (105.65 days) and calving intervals (12.61 months). It is concluded that farmers in three sub-district had a sufficient reproduction management and Aceh cows kept by farmers in Nisam sub-district had the best reproductive performances.

Keywords: Keywords: Performances, Reproductive, Aceh cows, Aceh Province

Introduction
Aceh cattle is one amongst seven of native/local cattle breed appeared in Indonesia (ILRI, 1995 cit Abdullah, 2008; Sari, 2011). The majority of farmers in Aceh province keep their cattle in a traditional way, cattle are allowed for grazing during the day and housed in the night with a simple housing (Abdullah, 2008), on average each farmers has 2-5 head of cattle (Avicenna, 2014). With a simple management, the performance of cattle is generally low, including reproductive performances. Poor management is a key difficulty cattle herds (Mayne et al., 2002; Mee, 2004). Reproductive performance of cows is mostly depends on management of reproduction applied by farmers. Harjosubroto (1994) stated that first mating age of cow kept on good management, ranged from 14-16 months, while in traditional system, first mating is done when cows reach 2-3 years old. Mayne et al. (2002) and Mee (2004) stated that in farmers level, average estrus detection rates have been estimated to be approximately 70%. Increased intervals from calving to first estrus are associated with reduced conception
rate to first service, indeed, prolonged post-partum anestrus is a major limitation of reproductive efficiency in cow herds (Lane et al., 2013). Much work has been done on nutritional and management effects on cows reproductive, however there is limited information on the reproductive management and performance of Aceh cows. Therefore, the aim of this paper is to evaluate the management and reproductive performances of Aceh cows kept by farmers in three different sub-districts of Aceh Province.

Methodology
The research was conducted for ten months in three different sub-district namely Muara Batu, Sawang and Nisam, North Aceh district, Aceh Province. In total, 162 farmers and their Aceh cows were involved in the study. The farmers were interviewed using a semi structured questionnaire to evaluate reproduction management done by farmers, while the cows were measured and recorded for their reproductive performances, including: first estrus and calving age, post partum estrus, estrus cycle, service per conception (S/C), pregnancy length and calving intervals. One way analysis of variance were used to analyze different mean and continued by Duncan’s new multiple range test (DMRT) for significant differences amongst the sub-district.

Results and Discussion
The result indicated that farmers usually mated their cows after the cows reach at least 25 months old, with the earliest (P<0.05) mating was in Muara Batu sub-district (Table 1). It is in line with Hardjousubroto (1994) who stated that under traditional systems, cows are mated after 2-3 years old. The ability of farmers in three different sub-district on detecting estrus is mostly good, however there is a tendency that farmers in Muara Baru sub-district had the poor performance on detecting estrus cycle. This finding also supported by Mee (2004) that estrus detection rates have been estimated to be approximately 70%. Others study stated that he accuracy of estrous detection at the farmers levels was questionable (White and Sheldon, 2001; McCoy et al., 2006).

Most farmers also apply natural mating to mate their cows, on average less than 30% farmers mate their cows with artificial insemination (Table 1). The fact that farmers kept the cows on grazing base during daylight could be the reason for high percentages of natural mating. There was a significant difference on post partum mating (PPM), cows kept by farmers in Nisam sub-district had the shortest PPM compared to cows in other sub-district.

Reproductive performances of Aceh cows kept by farmers in three different sub-district of Aceh district is presented in Table 2. The majority of reproductive performances were showed no significant differences amongst the sub-district, except for post partum estrus and calving intervals, cows kept by farmers in Nisam sub-district had the shortest post partum estrus (105.65 days)
Poster Presentation – Animal Reproduction and Breeding

and calving intervals (15.09 months) (P<0.05). The average of first estrus age was 27.25 months, while first calving age, estrus cycle, service per conception (S/C), and length of pregnancy were 38.10 months; 19.57 days; 1.14 times; 9.19 months respectively. Other study found that PPE of local cows was 107.4±11.7 days (Setiawan, 2012). The high PPE in this study could be caused by late of weaning age (Table 1), as stated by Toelihere (1985) and Hafez (1993) that calf milking activity will increase prolactin secretion, it will reduce the activity of follicle stimulating hormone and luteinizing hormone. Low levels of both hormones causing low growth of follicle and prolonged the anestrus period.

Table 1. Reproduction management of Aceh cows done by farmers

<table>
<thead>
<tr>
<th>Parameters</th>
<th>Sub-district</th>
<th>Average</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Muara Batu</td>
<td>Sawang</td>
</tr>
<tr>
<td>Number of farmers</td>
<td>39</td>
<td>75</td>
</tr>
<tr>
<td>First mating age (months)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>a. Maleb</td>
<td>29.00±7.01</td>
<td>35.00±5.63</td>
</tr>
<tr>
<td>b. Female</td>
<td>25.41±4.80</td>
<td>28.54±4.00</td>
</tr>
<tr>
<td>Estrus detection (%)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>a. Poor</td>
<td>39.39</td>
<td>18.18</td>
</tr>
<tr>
<td>b. Ample</td>
<td>24.24</td>
<td>28.79</td>
</tr>
<tr>
<td>c. Good</td>
<td>36.36</td>
<td>53.03</td>
</tr>
<tr>
<td>d. Excellent</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>Mating method (%)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>a. Natural</td>
<td>60.61</td>
<td>65.08</td>
</tr>
<tr>
<td>b. AI</td>
<td>27.27</td>
<td>30.16</td>
</tr>
<tr>
<td>c. Mixed</td>
<td>12.12</td>
<td>4.76</td>
</tr>
<tr>
<td>PPM (day)</td>
<td>129.00±89.16</td>
<td>156.84±93.33</td>
</tr>
<tr>
<td>Weaning age (month)ab</td>
<td>7.75±2.05</td>
<td>8.52±1.78</td>
</tr>
<tr>
<td>Keeping length (year)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>a. Maleb</td>
<td>2.44±1.51</td>
<td>4.09±3.34</td>
</tr>
<tr>
<td>b. Femaleb</td>
<td>8.32±1.01</td>
<td>8.76±1.40</td>
</tr>
</tbody>
</table>

abDifferent superscript at the same rows denote significant differences (P<0.05).

Service per conception (S/C) in this study was quite good, other study in local cows revealed that S/C was 1.5 (Angkasari, 2009) while normal S/C was 1.6-2.0 times (Toelihere, 1985), the grazing system and natural mating applied by the farmers in Aceh could be reason for this achievement. This study also found that calving intervals (15.09 months or 452.63 days) of Aceh cows kept by farmers was shorter than other local cows such as Pesisir cows (545 days) and Bali cows (500.63 days) kept by traditional farmers in Pesisir Selatan district, West Sumatera (Yendraliza, 1999).
Poster Presentation – Animal Reproduction and Breeding

Table 2. Reproductive performances of Aceh cows kept by farmers

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Muara Batu</th>
<th>Sub-district</th>
<th>Nisam</th>
<th>Average</th>
</tr>
</thead>
<tbody>
<tr>
<td>First estrus age (month)a</td>
<td>26.08±3.37</td>
<td>27.68±4.46</td>
<td>27.39±3.50</td>
<td>27.25±3.94</td>
</tr>
<tr>
<td>First calving age (month)b</td>
<td>37.57±4.24</td>
<td>39.66±6.10</td>
<td>39.07±4.58</td>
<td>38.10±5.22</td>
</tr>
<tr>
<td>Post partum estrus (day)</td>
<td>115.00±78.84a</td>
<td>138.42±61.78a</td>
<td>105.65±19.74b</td>
<td>122.13±56.56</td>
</tr>
<tr>
<td>Estrus cycle (day)c</td>
<td>18.75±2.49</td>
<td>19.75±2.00</td>
<td>19.79±1.23</td>
<td>19.57±1.82</td>
</tr>
<tr>
<td>S/C (time)</td>
<td>1.23±0.40a</td>
<td>1.17±0.37ab</td>
<td>1.04±0.21b</td>
<td>1.14±0.34</td>
</tr>
<tr>
<td>a. S/C-natural mated</td>
<td>1.09±0.29</td>
<td>1.11±0.32</td>
<td>1.03±0.16</td>
<td>1.07±0.26</td>
</tr>
<tr>
<td>b. S/C-AI</td>
<td>1.62±0.51a</td>
<td>1.26±0.45ab</td>
<td>1.17±0.41b</td>
<td>1.36±0.49</td>
</tr>
<tr>
<td>Pregnancy length (month)d</td>
<td>9.16±0.17</td>
<td>9.21±0.24</td>
<td>9.19±0.17</td>
<td>9.19±0.20</td>
</tr>
<tr>
<td>Calving intervals (month)e</td>
<td>14.32±3.76b</td>
<td>17.11±3.65a</td>
<td>12.61±1.72c</td>
<td>15.09±3.74</td>
</tr>
</tbody>
</table>

a,b Different superscript at the same rows denote significant differences (P<0.05).
Non significant.

Conclusion
Based on the study, it can be concluded that farmers in three sub-district had a sufficient reproduction management and Aceh cows kept by farmers in Nisam sub-district had the best reproductive performances, in terms of post partum estrus and calving intervals.

References
Poster Presentation – Animal Reproduction and Breeding


