The 6th ISTAP
International Seminar
on Tropical Animal Production

“Integrated Approach in Developing Sustainable Tropical Animal Production”

PROCEEDINGS

October 20-22, 2015
Yogyakarta Indonesia

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PREFACE

On behalf of Faculty of Animal Science, Universitas Gadjah Mada, I am pleased to present you the 6th International Seminar on Tropical Animal Production (ISTAP) which is held on October 20 – 22, 2015 at Auditorium drh. Soepardjo, Faculty of Animal Science UGM, Yogyakarta. Under the main theme “Integrated Approach in Developing Sustainable Tropical Animal Production”, we expect that information and ideas on animal production systems in the tropics and its related problems will be shared among participants, thus we can elaborate an integrated approach in developing sustainable tropical animal production. I believe, this can be achieved since more than 250 animal scientists, researchers, students, and producers from more than 15 countries join this seminar.

In this moment, I have to address my great thanks to all people who have contributed for the success of this seminar. First, to all participants, thank you for your contributions, time, and efforts in participating in all sessions in this seminar. We also would like to extend our gratitude to the reviewers and editors for dedicate their expertise and precious time in reviewing and editing the papers. I deeply appreciate the hard work of all members of the Steering Committee, Organizing Committee, and students of Faculty of Animal Science UGM for making this seminar achieved a great success!

I hope all of you enjoy the seminar and Jogja as well!

Dr. Cuk Tri Noviandi

Editor in Chief
REPORT FROM ORGANIZING COMMITTEE

Dear all of the scientists, delegates, participants, ladies and gentlemen,

Praise be to The Almighty for His Merciful and Beneficent to raise up this memorable moment for all of the scientists and delegates from all over the world who were interested in Animal Science field to meet up together.

On behalf of all the members of Board Committee, it is my great pleasure and honor to welcome all of you and impress thankful, and present a high appreciation for your participation in joining the 6th ISTAP in Yogyakarta, one of the Special Region in Indonesia where culture and tradition live in harmony with the modern nuance and educational spirit makes it a beautiful venue of this seminar.

During this event, we have distinguished scientists from all over the world to present plenary papers Livestock Management, Production, and Environment; Feed, Land, and Landscape for Sustainable Animal Production; Livestock Industry and Technology; Economics, Social, and Culture in Livestock Development; and Special issue on Halal Food, Safety and Regulation. It is noted that around 200 scientists as well as livestock producers, companies, graduate and postgraduate students from 15 countries attend the seminar; and more than 160 research papers will be presented. We can see great enthusiasm of all the scientists to solve livestock problems as well as to share valuable information and knowledge for human prosperity all over the world.

The 6th ISTAP Program consists of scientific and technical programs as well as social and cultural activities. The scientific and technical programs offer 4 plenary sessions, field trip, and many scientific sessions (both oral and poster presentation). The social and cultural programs of the 6th ISTAP are very important as the scientific and technical programs since the promotion of friendship and future scientific cooperation are also central to this seminar. Opening Ceremony offers you the Seminar Program a glance. Participants will attend a warm invitation from Dean Faculty of Animal Science UGM in a Welcome Dinner that will give you the most memorable moment to attend. Field trip activity offers a wonderful sightseeing to the most spectacular natural landmark in Yogyakarta, Merapi Lava Tour and Ulen Sentalu Museum. We do hope that you will not miss any of these wonderful opportunities.

Closing Ceremony will be held on October 22nd, 2015, immediately after the last session of presentation. The 6th ISTAP award will be announced for some participant as an appreciation for their valuable research.

Finally, on behalf of 6th ISTAP Committee, I wish all of the participants having a great achievement of success and fulfill the expectation as well as enjoying the interaction with all scientists participating in the seminar.

High appreciation I may acknowledge to the Rector of Universitas Gadjah Mada and Dean Faculty of Animal Science UGM, who have concerned to facilitate the seminar site host.

Special thank to the Steering Committee, Scientific Committee, Reviewers and Editorial Boards for their great contribution to make the seminar successfully organized.

Terima kasih (Thank you).
Sincerely Yours,

Prof. I Gede Suparta Budisatria, Ph.D
Chairman
The Organizing Committee of the 6th ISTAP
WELCOME ADDRESS

Selamat pagi (Good morning)

Dear Rector of Universitas Gadjah Mada, all of Invited Speakers, honorable guests, all of delegates, participants, distinguished guests, Ladies and Gentlemen

Attendants of The 6th ISTAP,

It is my great pleasure and honor to extend a warm welcome to all of you at The 6th International Seminar on Tropical Animal Production, which be held on October 20 – 22, 2015 at Auditorium drh. Soepardjo, Universitas Gadjah Mada, Yogyakarta Indonesia. This seminar is proudly organized by Faculty of Animal Science Universitas Gadjah Mada.

The contribution of this seminar to the development of national food security is truly significant for introducing of new scientific knowledge and equipments that is much needed in Indonesia to maintain a safe and secure environment and to look at more effective ways to meet future challenges. We can see great enthusiasm of the entire participant to present their latest research as well as to share valuable information and knowledge for human prosperity all over the world.

In these 3 days of seminar, we have invited some Plenary Speakers and Invited Papers who are qualified as scientists and bureaucrats in animal science field to share their valuable information and knowledge. Other participants can deliver their precious research through oral and poster presentations.

Finally, on behalf of Faculty of Animal Science, we would like to extend our sincere gratitude to the Minister of Rural, Rural Development, and Transmigration, Republic of Indonesia, Mr. Marwan Jafar, for his generosity to be with us here to give Keynote Speech. Then, it is our great honor and pleasure to have qualified scientists and bureaucrats as Plenary Speakers and Invited Papers to share their valuable knowledge during the plenary and concurrent sessions. Moreover, special thank you is for the Steering Committee, Scientific Committee, Reviewers and Editorial Boards for their great contribution to make the seminar a great success. Also, we would like to congratulate and deliver high appreciation to the Organizing Committee as the organizer for their great contribution and generous efforts to make the seminar successfully organized.

And to all of the participants, I hope that this seminar will always success and bring some acknowledgement for all of us. Also, I wish all of the participants having a great achievement of success and fulfill the expectation as well as enjoying the interaction with all participants.

With all of our hospitality, we will try our best to make your brief visit to our country become a wonderful and memorable moments.
We are looking forward to meeting you all in the future event.

Wish you all a very pleasant and most enjoyable stay in Yogyakarta, Indonesia, beside you scientific journeys.

Terima kasih (Thank you).

Sincerely Yours,

Prof. Dr. Ali Agus
Dean Faculty of Animal Science UGM
OPENING REMARKS

Dear all of Scientists, distinguished guests, delegates, participants, Ladies and Gentlemen,

On behalf of Universitas Gadjah Mada, I am happy to welcome you and present a high appreciation for your participation in joining the 6th International Seminar on Tropical Animal Production hosted by the Faculty of Animal Science UGM in Yogyakarta from 20 – 22 October 2015.

Under the theme of “Integrated Approaches in Developing Sustainable Tropical Animal Production”, we do hope that this seminar concludes with shared ideas and best practices, technology, and global networks that are required to increase animal production. The increase of animal production as one source of food is crucial to feed the world given that the population is expected to increase from 6 billion to about 8.3 billion in 2030. According to FAO (2008, 2009), the consumption of animal food increased from 10 kg/per annum in 1960, 26 kg/per annum in 200, and it is expected to be 37 kg/per annum. Animal production is an integral part of food production and contributing for the quality of human food supply. Animal and agricultural production is an important component in the integrated farming systems in developing countries as this produces high quality foods, provides job opportunities in rural areas, as well as enriching livelihood.

As a tropical country with high animal biodiversity, Indonesia and other tropical countries, have a variety number of indigenous and local animal genetic resources and germ plasm. This variety of animal germ plasm could be explored and developed not only for animal and food production but also for animal conservation. Apart from being exploited as food resources, it is therefore important to consider animal conservation. Conservation will protect the genetic potency of local bred and their family, and the domesticated animal bred, and this would secure our future food resources.

In these 3 days of seminar, we believe those aforementioned issues will be discussed, and technical solution as well as recommendation will be provided to solve the existing problems in tropical animal production.

Finally, on behalf of Universitas Gadjah Mada, we would like to congratulate and thanks to the Faculty of Animal Science UGM as the organizer for their great efforts to make the seminar successfully organized. To all of participants, I wish all of you have a great discussion and interaction with other scientists participating in the seminar as well as enjoying your time in Yogyakarta.

Thank you

Prof. Ir. Dwikorita Karnawati, M.Sc., Ph.D.
Rector of Universitas Gadjah Mada
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48. NR-38-O The Use of Tricoderma sp. as a Starter of Fermentation Dry Teak Leaves (Tectona grandis) as Animal Feed
   Yunianta and Hartatik…………………………………………………………291-295
ABSTRACT: This research activity aims to know the productivity of legume cover crop *Pueraria javanica* inoculated Rhizobium and cattle urine. *P. javanica* legume was planted on 24 plots using size of 3x2 m and planting space of 30 cm in palm oil plantations East Kutai. There were four treatments, with inoculated Rhizobium (R+), without inoculated Rhizobium (R-), urine cattle (U+) and without urine (U-) of the six replications (plots). Rhizobium bacteria inoculated on *P. javanica* seeds before planting, urine was given after a 2 week old plants. The research design used completely randomized factorial design (2x2) with 6 replication, data were analyzed using ANOVA and continued with Duncan test if the treatment effect on the parameters observed. Data collected were: germination percentage, dry weight yields, leaves and steam weight, leaves and steam ratio, number and weight of root nodule, nutrient content (e.g. organic matter, crude protein, ash, crude fiber, neutral detergent fiber, acid detergent fiber), tannin and fenol. The results showed that percentage germination below 50% and not significantly, interaction Rhizobium and urine were significantly (P<0.05) on dry weight production and steam production. There was no effect on other parameters. It was concluded that Rhizobium and urine treatment given better results in crop production.

Keyword : *Pueraria javanica*, Rhizobium, Bali Cattle Urine, Production, Nutrient Content

INTRODUCTION

The development of palm oil plantation area in Borneo is currently rapid and estimated be suitable for cattle farm because they have sufficient feed resources such as oil palm fronds, palm kernel cake as well as the potential sources of feed that are rarely used, legume cover crop. Legumes available were such callopo (*Collopogonium mucunoides*), centro (*Centroccema pubescent*), peuro (*Pueraria phaseoloides var. Javanica*) and mucuna (*Mucuna bracteata*). Legumes are compulsory plants in order to maintain soil moisture, eliminate weeds, increase palm soil fertility (Anonymous, 2009). The production of peuro was 12-20 tons DM/ha/year, callopo and centro reached 6 tons, while mukuna was 22 tons with a crude protein content of 16% after flowering and above 20% before flowering (Legel, 1990).

Peuro productivity in palm oil plantations should be maintained in order to be used as feed crops, by providing inoculant rhizobium and cow urine. The purpose of inoculation was for the gas nitrogen (N₂) from the air can be tethered by rhizobium the root nodule bacteria and converted to ammonia by the complex nitrogenized enzyme and nitrogen absorbed by legumes in the form of NO₃ (nitrate) and NH₄ (ammonium) (Samekto, 2008). Urine produced by the cows as a result of metabolism had a value which is very beneficial. In addition, it contained N and K in which also a plant growth hormone, such as auxin-a, auxin-b and other auxin which was the IAA (Indol Acetic Acid). Auxinis derived from a variety of substances contained in the forage protein from the feed, because it did not decompose in the body then issued as a filtrate along with urine which secretes specific substances to encourage rooting (Yunita, 2011).
MATERIALS AND METHODS

This study was conducted in one of the palm tree plantations in the Bengalon District, East Kutai Regency in East Borneo for 4 months, November 2014 - March 2015, with monthly rainfall of 142-430 mm and the number of monthly rain days ranged from 14-19 days. Air temperature ranged 22.60 °C - 35.20 °C and air relative humidity of 72% - 88% (Station of Climatology Tanjung Redep, 2014).

Materials

The research land for cultivating legume *Pueraria javanica* (peuro) was covering an area of 15 x 15 m, with a number of 24 plots in 3 x 2 m per plot. Soil samples were taken as deep as 20 cm in some places and analyzed at the Laboratory of Soil Faculty of Agriculture UGM ((2014), as in Table 1.

Table 1. Analysis of Soil Chemistry, Organic Fertilizer and Bali CowUrine

<table>
<thead>
<tr>
<th>No</th>
<th>Parameter</th>
<th>Soil</th>
<th>Fertilizer</th>
<th>Bali Cow Urine</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>pH (1:2.5) (H2O)</td>
<td>4.40</td>
<td>7.47</td>
<td>7.32</td>
</tr>
<tr>
<td>2</td>
<td>C organic (%)</td>
<td>9.36</td>
<td>17.61</td>
<td>0.70</td>
</tr>
<tr>
<td>3</td>
<td>Organic ingredient (%)</td>
<td>16.14</td>
<td>30.66</td>
<td>1.21</td>
</tr>
<tr>
<td>4</td>
<td>Total N (%)</td>
<td>0.46</td>
<td>1.51</td>
<td>0.03</td>
</tr>
<tr>
<td>5</td>
<td>P Available (ppm)</td>
<td>2.16</td>
<td>0.47</td>
<td>0.02</td>
</tr>
<tr>
<td>6</td>
<td>K Available (me/100 g)</td>
<td>0.25</td>
<td>1.04</td>
<td>0.3</td>
</tr>
<tr>
<td>7</td>
<td>C/N</td>
<td></td>
<td></td>
<td>11.66</td>
</tr>
<tr>
<td>8</td>
<td>Texture class</td>
<td>Red soil</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Seeds of legumes *Pueraria javanica* (PJ) was 150 g (10 kg/ha), organic fertilizers (raw materials: feces, empty fruit bunches of palm tree, ash boiler, 600 kg (4,350 kg/ha) fiber and starter) (Anonymous, 2009), 270 l of Bali cattle urine (5000 l/ha) (Kamara, 2011), 21.6 kg (200 kg / ha) rock phosphate fertilizer (Anonymous, 2009), 3.75 g (25 g / 1 kg of seeds peuro) Rhizobium Legin LCC (*leguminose inoculant cover crop*) (Anonymous, 2014).

Methodology

There are four combinations of treatments in this research: 1. Treatment with Rhizobium (R+), 2. Treatment without Rhizobium (R-), 3. Treatment with Cow Urine (U+), 4. Treatment Without Bali cow Urine (U-), with each replication of 6 plots.

Peuro legume seeds 150 g was soaked in a mixture of hot water and cold water (1: 2) for one hour to soften the outer shell of hard seed (Anonymous, 2014). The number of seeds was divided by two. For R+, 50% seed was mixed with 3.75 g rhizobium, and for R-, 50% was without rhizobium. Both were allowed to stands for 6 hours. Planting the seeds of R+ and R- was conducted on the afternoon in polybag with a depth of 2 cm, 5 seeds peuro per polybag. After 21 days, legume peuro were transferred to plots of land by leaving one plant per hole. Simultaneously, in each planting hole were given fertilizers, phosphate rock, with a spacing of 30 x 30 cm (Anonymous, 2009). Fertilization used was only organic fertilizer of 0.5 kg/plant (0.15 kg seven days before planting, 0.15 when it is 10 days old, and 0.2 kg when it is 30 days old) and the treatment of cow urine (U+). Urine was given to the plant life of 15 days old and 30 days by way
of sprayed around the plant, diluted with water (1:10). Harvesting can be conducted in 3 month old by cutting the plants 10 cm from the ground.

Parameters measured were (1) the production aspects: nodule (number, weight), the length of legumes, the ratio of leaves : steam, weight leaves and steam, dry weight yeild (DM), organic matter (OM), (2) aspects of the nutrient : proximate analysis, analysis of fiber (NDF, ADF), (3) the aspect of anti-nutrients: tannins and phenols. Legume production data of biomass and nutrients were analyzed with Complete Random Design factorial 2 x 2. If there is a difference, it will be followed by Duncan test.

**RESULTS AND DISCUSSION**

**Biomass production of *Pueraria javanica***

Production of dry matter and organic matter of *Pueraria javanica* legumes shown in Table 2.

**Table 2.** Production of *Pueraria javanica* Biomass with Rhizobium and cow urine inoculant treatment

<table>
<thead>
<tr>
<th>Rhizobium</th>
<th>Bali cow Urine</th>
<th>Average</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>U-</td>
<td>U+</td>
<td></td>
</tr>
<tr>
<td>Dry matter production per plant (g)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>R-</td>
<td>93.22±8.6aA</td>
<td>104.13±12.59abB</td>
<td>98.67±14.65</td>
</tr>
<tr>
<td>R+</td>
<td>109.10±10.92bA</td>
<td>147.16±12.96bB</td>
<td>128.13±29.39</td>
</tr>
<tr>
<td>Average</td>
<td>101.16±17.73</td>
<td>125.64±30.16</td>
<td></td>
</tr>
<tr>
<td>Dry matter production per m² (g)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>R-</td>
<td>838.98±67.49aA</td>
<td>937.17±167abB</td>
<td>888.07±131.82</td>
</tr>
<tr>
<td>R+</td>
<td>981.88±198.02bA</td>
<td>1,324.43±210.44bB</td>
<td>1,153.16±264.49</td>
</tr>
<tr>
<td>Average</td>
<td>910.43±159.57</td>
<td>1,130.8±271.49</td>
<td></td>
</tr>
<tr>
<td>Organic matter production per plant (g)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>R-</td>
<td>87.18±2.39</td>
<td>86.59±2.24</td>
<td>86.88±2.21</td>
</tr>
<tr>
<td>R+</td>
<td>88.36±1.56</td>
<td>86.30±3.77</td>
<td>87.33±2.93</td>
</tr>
<tr>
<td>Average</td>
<td>87.77±2</td>
<td>86.44±2.93</td>
<td></td>
</tr>
<tr>
<td>Leaf Production (g)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>R-</td>
<td>38.07±1.35</td>
<td>40.49±8.57</td>
<td>39.28±5.98</td>
</tr>
<tr>
<td>R+</td>
<td>45.07±12.87</td>
<td>49.78±13.86</td>
<td>47.43±12.99</td>
</tr>
<tr>
<td>Average</td>
<td>41.57±9.46</td>
<td>45.14±12.01</td>
<td></td>
</tr>
<tr>
<td>Steam production (g)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>R-</td>
<td>55.15±8.61</td>
<td>63.64±12.59</td>
<td>59.4±11.19c</td>
</tr>
<tr>
<td>R+</td>
<td>64.03±10.92</td>
<td>97.38±12.96</td>
<td>80.7±20.83d</td>
</tr>
<tr>
<td>Average</td>
<td>59.59±10.45a</td>
<td>80.81±21.41b</td>
<td></td>
</tr>
<tr>
<td>Ratio steam and leaves</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>R-</td>
<td>0.73±0.13</td>
<td>0.69±0.13</td>
<td>0.71±0.13</td>
</tr>
<tr>
<td>R+</td>
<td>0.73±0.16</td>
<td>0.54±0.13</td>
<td>0.63±0.17</td>
</tr>
<tr>
<td>Average</td>
<td>0.73±0.13a</td>
<td>0.61±0.15b</td>
<td></td>
</tr>
</tbody>
</table>

Explanation: Different Superscript in the same column and row showed significantly different.
Dry matter production per plant and per m² was affected by Rhizobium inoculant and cow urine (P <0.05). The highest dry matter production per plant and per m² was in treatment R+U+ and the lowest was in R-U-. It shows that Rhizobium inoculants as one of a group of bacteria that was enabled as a provider of nutrients for plants. PJ legumes can take N from the air if it has symbiosis with Rhizobium bacteria. Before being able to take the N from the air legume, PJ needed N as a starter of early growth, and cow urine can be used because it contains nitrogen (Table 1). Dry Plant weight was a measure of the determination of the quality of plant growth and yield of a crop that was the result of the process of photosynthesis, assimilate and translocation to the decline in plant organs (Yunita, 2011). The influence of the urine was significantly because cow urine contained the hormone indole acetic acid, which is known as the main auxin in plants. Auxin is expected to promote the occurrence of the bend in the hair root, which is a prerequisite Rhizobium infection (Gardner et al, 1991, Kamara, 2011).

Production of organic materials (BO) no difference among all treatments. The highest BO was R+U and the lowest was R+U+, BO is affected by the ash ingredients in each treatment plant (Table 4).

Leaf production had no differences between treatments. The weight of the stems showed different results (P <0.05), there is an interaction between rhizobium and the urine with the ultimate weight on R+U+ and the lowest of R-U-. It caused by Rhizobium inoculant and cow urine were expected to provide sufficient nutrients for the growth of PJ legumes. The amount of auxin contained by cow urine was in the right amount which then interacts with growth regulator that was existed in cow urine (Yunita, 2011). Germination parameter, plant length, number and weight of nodules were presented in Table 3.

Table 3. Germination, Plant Length, Number and Weight of Nodules of *Pueraria javanica* with Rhizobium treatment and Cow Urine

<table>
<thead>
<tr>
<th>Rhizobium</th>
<th>Cow Urine</th>
<th>Average</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>U-</td>
<td>U+</td>
</tr>
<tr>
<td>Germination (%)</td>
<td>41.83±11.70</td>
<td>42.50±7.21</td>
</tr>
<tr>
<td>R-</td>
<td>39.17±4.24</td>
<td>43.00±11.2</td>
</tr>
<tr>
<td>Average</td>
<td>40.5±8.63</td>
<td>42.75±8.99</td>
</tr>
<tr>
<td>Plant Length (cm)</td>
<td>297.01±42.76</td>
<td>278.77±5.03</td>
</tr>
<tr>
<td>R-</td>
<td>290.22±44.7</td>
<td>323.41±31.9</td>
</tr>
<tr>
<td>Average</td>
<td>293.62±41.85</td>
<td>301.09±43.91</td>
</tr>
<tr>
<td>Number of Nodules</td>
<td>38±20.22</td>
<td>39±24.92</td>
</tr>
<tr>
<td>R-</td>
<td>29±12.29</td>
<td>25±12.42</td>
</tr>
<tr>
<td>Average</td>
<td>33±16.7</td>
<td>28±19.62</td>
</tr>
<tr>
<td>Nodule weight (g)</td>
<td>2.73±0.99</td>
<td>2.80±0.97</td>
</tr>
<tr>
<td>R-</td>
<td>3.00±2.22</td>
<td>3.17±1.51</td>
</tr>
<tr>
<td>Average</td>
<td>2.87±1.65</td>
<td>2.98±1.22</td>
</tr>
</tbody>
</table>
Legumes’ ability to grow with Rhizobium treatment did not make a difference because of the effects of Rhizobium appeared at days 28 (Rao, 2006) and had not received the addition of cow urine. PJ legume length had no difference in the treatments. The longest grow was in the R+U+ with an average gain of 3.6 cm length per day, the shortest on the R-U+ with a gain of 3.1 cm per day. The number and weight of nodules had no difference with rhizobium treatment and urine. The most nodules was R-U+ and the least was on R + U +. This is due to the possibility of nodules in R+U+ had already ripped first.

Nutrient Value of *Pueraria javanica* Legume

The value of nutrients and anti-nutrients such as legumes PJ was listed in Table 4.

**Table 4.** *Pueraria javanica* nutrient with Rhizobium inoculant and cow urine treatments (% Dry matter)

<table>
<thead>
<tr>
<th>Nutrient</th>
<th>R-U-</th>
<th>R-U+</th>
<th>R+U-</th>
<th>R+U+</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dry matter</td>
<td>26.95</td>
<td>24.82</td>
<td>26.25</td>
<td>26.58</td>
</tr>
<tr>
<td>crude protein</td>
<td>22.65</td>
<td>22.93</td>
<td>23.48</td>
<td>23.59</td>
</tr>
<tr>
<td>crude fiber</td>
<td>17.88</td>
<td>24.23</td>
<td>22.19</td>
<td>20.99</td>
</tr>
<tr>
<td>Fat</td>
<td>2.70</td>
<td>2.58</td>
<td>1.93</td>
<td>1.99</td>
</tr>
<tr>
<td>Ash</td>
<td>11.72</td>
<td>12.26</td>
<td>10.58</td>
<td>12.49</td>
</tr>
<tr>
<td>NFE</td>
<td>38.56</td>
<td>38.75</td>
<td>41.95</td>
<td>40.94</td>
</tr>
<tr>
<td>TDN</td>
<td>65.90</td>
<td>65.62</td>
<td>68.47</td>
<td>66.67</td>
</tr>
<tr>
<td>NDF</td>
<td>45.70</td>
<td>43.54</td>
<td>43.72</td>
<td>40.91</td>
</tr>
<tr>
<td>ADF</td>
<td>29.45</td>
<td>29.11</td>
<td>27.31</td>
<td>26.57</td>
</tr>
<tr>
<td>Tannin</td>
<td>36.74</td>
<td>38.74</td>
<td>41.23</td>
<td>41.17</td>
</tr>
<tr>
<td>Fenol</td>
<td>15.01</td>
<td>15.75</td>
<td>16.70</td>
<td>16.67</td>
</tr>
</tbody>
</table>

Rhizobium inoculant treatment and the distribution of cow urine did not make a difference to the nutrition value of legume, almost the same dry matter content of about 26%, the highest crude protein in the R+ U+, for the lowest in R-U-. The highest TDN in R+U+ amounted and at the lowest of R-U-. The highest NDF and ADF was in R-U- and the lowest was R+U+. The highest tannin anti-nutrient was in R+U-and the lowest was in R-U-. The highest phenol was at R+U- and the lowest was at R-U-.

According to Legel (1990), the crude protein content of *Peuraria javanica* before flowering was about 22%, TDN treatment almost equal approximately 65% - 68%. This indicates that the feed plant contains sufficient energy for the needs of cattle feed, while the TDN of PJ legumes of palm plantations in Borneo was around 57%. The fiber content (NDF) 40-45% indicates that PJ legumes do not contain a lot of fiber, compared NDF *Mucuna bracteta* legume by 71% (Sirait, 2009).
CONCLUSION

Leguminose *Pueraria javanica* showed good growth with the production and relatively high nutrient value with Rhizobium inoculant treatment and the contribution of cow urine, even though nutrient values did not give a significant difference. The highest production of dry matter per m$^2$ was in Rhizobium inoculant and urine of 1.324 g or 1.3 kg DM/m$^2$ and the lowest was 0.83 kg DM/m$^2$ on treatment without rhizobium and without urine.

REFERENCE

This is to certify that

IDA KETUT MUDHITA

has participated as
ORAL PRESENTER

at the 6th International Seminar on Tropical Animal Production
"Integrated Approach in Developing Sustainable Tropical Animal Production"
Faculty of Animal Science Universitas Gadjah Mada, Yogyakarta-Indonesia
October 20th - 22nd, 2015

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