



University of Kentucky  
UKnowledge

---

International Grassland Congress Proceedings

XXI International Grassland Congress / VIII  
International Rangeland Congress

---

## Effect of Frequency and Time of Cutting on the Production of Three Strains of Tropical Forage Legume *Aeschynomene americana* L. in Drained Paddy Field and Upland Field

Manabu Tobisa  
*University of Miyazaki, Japan*

M. Shimojo  
*University of Miyazaki, Japan*

Y. Nakano  
*University of Miyazaki, Japan*

K. Okano  
*University of Miyazaki, Japan*

Y. Masuda  
*University of Miyazaki, Japan*

Follow this and additional works at: <https://uknowledge.uky.edu/igc>



Part of the [Plant Sciences Commons](#), and the [Soil Science Commons](#)

This document is available at <https://uknowledge.uky.edu/igc/21/1-5/48>

The XXI International Grassland Congress / VIII International Rangeland Congress took place in Hohhot, China from June 29 through July 5, 2008.

Proceedings edited by Organizing Committee of 2008 IGC/IRC Conference

Published by Guangdong People's Publishing House

---

This Event is brought to you for free and open access by the Plant and Soil Sciences at UKnowledge. It has been accepted for inclusion in International Grassland Congress Proceedings by an authorized administrator of UKnowledge. For more information, please contact [UKnowledge@lsv.uky.edu](mailto:UKnowledge@lsv.uky.edu).

## Effect of frequency and time of cutting on the production of three strains of tropical forage legume *Aeschynomene americana* L. in drained paddy field and upland field

M. Tobisa<sup>1</sup>, M. Shimojo<sup>1</sup>, Y. Nakano<sup>1</sup>, K. Okano<sup>1</sup> and Y. Masuda<sup>1</sup>

Faculty of Agriculture, University of Miyazaki, Miyazaki, 889-2192 Japan, <sup>1</sup> Faculty of Agriculture, Kyushu University, Fukuoka, 812-8581 Japan. E-mail: mtobisa@cc.miyazaki-u.ac.jp

**Key words :** cutting frequency, drained paddy field, dry matter production, tropical forage legume

**Introduction** In Japan the rice production control has been continuing since the 1970's, and some parts of the paddy fields are laid off into forage production. However, in the ill-drained fields or the fields with high ground water table forage species of higher wet endurance are required. Tropical forage legume *Aeschynomene americana* cv. Glenn has a high wet endurance (Bishop *et al.*, 1985; Tobisa *et al.*, 1999) and shows high dry matter productivity (Skerman *et al.*, 1988; Tobisa *et al.*, 1999). The objective of this experiment was to investigate the effects of two levels of cutting frequency and time on the dry matter productivity of *Aeschynomene americana* L. grown at both drained paddy field and upland field in southern area of Japan.

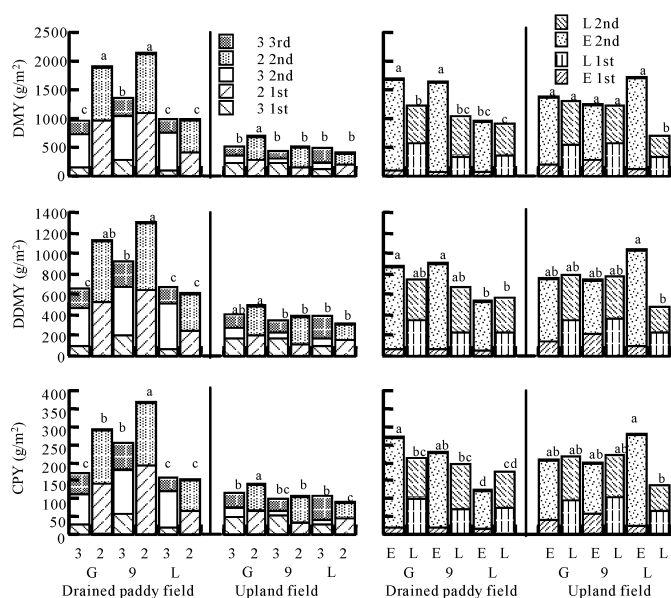
**Materials and methods** The experiment was conducted in the drained paddy field adjoining rice paddy field at the Kyushu University Farm. Three strains of *Aeschynomene americana* (cv. Glenn, Lee and CPI93556) were sown in spacing of 50 cm × 15 cm on June 1. Two levels of cutting frequency were (1) two times cutting (the first cutting on August 19th, the second cutting on October 3rd) and (2) three times cutting (August 4th, September 4th, October 3rd). Two levels of the first cutting were (1) early time (August 3rd) and (2) late time (August 18th), followed by the second cutting on October 9th. Measurements were made for dry matter yield (DMY), *in vitro* dry matter digestibility (IVDMD) and crude protein (CP). Digestible dry matter yield (DDMY) and CP yield (CPY) were calculated.

**Results** Total DMY, DDMY and CPY for the two times cutting treatment of Glenn and 93556, annual forages, were higher than the three times cutting treatment in the drained paddy field and upland field (Figure 1). As for Lee, total DMY, DDMY and CPY in the drained paddy field did not show significant differences between the two treatments of cutting, but in the upland field they showed slightly higher values for the three times cutting. Total DMY, DDMY and CPY for the early time cutting treatment of Glenn and 93556 were higher than the late time cutting treatment in the drained paddy field, but in the upland field they showed similar values between the early and late time cutting treatments.

**Conclusions** The results of the present study suggested that Glenn and 93556 showed higher total DMY, DDMY and CPY at two times cutting and longer period of regrowth in the drained paddy field.

### References

- Bishop H. G., D. H. Ludke & M. T. Rutherford (1985). Glenn jointvetch: a new pasture legume for Queensland coastal areas. *Queensland Agricultural Journal* 111, 241-245.
- Skerman P. J., D. G. Cameron & F. Riveros (1988). In: Tropical Forage Legumes. FAO. Rome. 205-211.
- Tobisa M., M. Shimojo, K. Okano & Y. Masuda (1999). Growth habit of tropical forage legume genus *Aeschynomene* in the drained paddy field and upland field. *Grassland Science* 45, 248-256. (In Japanese with English summary)



**Figure 1** Effect of frequency and time of cutting on the dry matter yield (DMY), digestible dry matter yield (DDMY) and crude protein yield (CPY) of *Aeschynomene* in drained paddy and upland fields.

G: Glenn, 9: CPI93556, L: Lee, 3: three times cutting, 2: two times cutting, E: early time cutting, L: late time cutting.

The total values followed by different letters are significantly different at  $P < 0.05$ .