

Thesis Title    Effect   of   Close   Cutting   on   Yields   and   Quality   of  
Eight   Forage   Grass   Species.

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## ABSTRACT

The   studies   were   carried   out   on   the   Korat   soil   series   for  
both   in   the   glasshouse   (Experiment   1)   and   field   (Experiment   2)   of  
Khon   Kaen   University.   The   design   used   was   randomized   complete  
block   with   four   replication   for   both   experiments.

Experiment   1   composed   of   10   treatments   but   only   8  
treatments   in   Experiment   2   by   using   8   species   of   grasses   namely :  
guinea   (*Panicum   maximum*   cv.   Guinea),   ruzi   (*Brachiaria*  
*ruziziensis*),   signal   (*Brachiaria   decumbens*),   creeping   signal  
(*Brachiaria   humidicola*),   napier   (*Pennisetum   purpureum*),   hamil  
(*Panicum   maximum*   cv.   Hamil),   sabi   (*Urochloa   mosambicensis*)   and  
gamba   (*Andropogon   gayanus*).   Two   treatments   of   pearl   millet  
(*Pennisetum   americanum*)   were   included   in   Experiment   1.   All   the  
tested   grass   species   were   cut   at   1   inch   from   ground   level.   Pearl  
millet   were   cut   at   1   inch   in   one   treatment   and   5   inches   in   the  
other   treatment.

The glasshouse experiment showed that signal grass gave the highest amount of fodder dry matter yield up to 133.35 g./pot which was statistically significant over all other 8 varieties of grasses used ( $P < 0.01$ ). Pearl millet gave the lowest fodder dry matter yield (48.05 g./pot) when cut at 1 inch above ground level. The number of plants was highest with ruzi but was not statistically significant over signal and gamba grasses. The lowest plant populations were found with pearl millet when cut at 1 inch above ground level. The average percentage mean of crude protein (CP) was not statistically different from one another ( $P > 0.05$ ). Nevertheless, the average percentage mean of ash of napier grass was the lowest (4.1%) and the highest was found with creeping signal grass (6.7%). The highest percentage of neutral detergent fiber (NDF) and acid detergent fiber (ADF) were found in hamil grass being 76.5% and 41.1%, respectively. The lowest percentages of NDF and ADF were found in ruzi grass being 63.1% and 29.4%, respectively. Results of the field experiment demonstrated that signal grass had the highest fodder dry matter yield through out the experimental period with the average yield of 4.16 tons/rai. The difference was large and statistically significant ( $P < 0.01$ ). Gamba grass ranked the second (3.16 tons/rai), while sabi grass was the lowest (1.68 tons/rai), but did not differ from napier grass (1.72 tons/rai). Signal grass performed better on yielding ability as compared to the other forage grass species, particularly in dry season (0.55 tons/rai) which was statistically different ( $P < 0.01$ ). In addition, the lowest yield (0.13 tons/rai) and the poorest recovery during the rainy season of the second year were found in napier grass.