Growth, Production and Nutritive Value of *Brachiaria mulato* as Affected by Levels of Urea Fertilization

Damry, Marsetyo and S.Hj. Syukur
Department of Animal Science, University of Tadulako, Indonesia
email: damry_01@yahoo.com

ABSTRACT

This experiment was aimed at investigating growth, production, and nutritive value of Mulato grass (*Brachiaria mulato*) as affected by levels of urea fertilization. The experiment was designed with a 3 x 6 completely randomized design to test three application levels of urea fertilizer (0, 150, or 300 kg/ha); each of which was replicated six times. The grass was planted, with a planting size of 60 x 75 cm, on 18 plots having an individual size of 3 x 3 m. All the plants were cut at week three after planting and urea was applied on week four. Parameters measured were plant height, tillage number, leaf width, biomass production and nutrient contents (crude protein [N x 6.25], neutral detergent fibers, and crude fat) of plant dry matter, and measurements of (or sample collection for) these parameters were done on week seven after cutting. Between treatment differences were statistically analyzed with an analysis of variance. Results indicated that the levels of urea fertilizer significantly ($P<0.05$) affected the plant tillage number, dry matter production and crude protein and neutral detergent fiber contents. Applying 150 kg/ha urea increased tillage number, dry matter production and crude protein content of the plant while reducing the neutral detergent fiber content of the plant compared to unfertilized plants. Increasing the urea application level to 300 kg/ha resulted in further increase in tillage number, dry matter production and crude protein content of the plant and further reduced the neutral detergent fiber content. The level of urea application up to 300 kg/ha did not affect the height, leaf width, dry matter, organic matter or crude fat contents of the Mulato grass.

Key words: mulato, urea, growth, production and nutritive value

INTRODUCTION

Indonesian beef cattle production system is to a large extent managed traditionally by small scale farmers who maintain a limited number of cattle and apply a low level of production technologies. Under the system, the cattle herd is primarily dependent upon feeds available from road sides and communal grasslands, which is provided to the animals through the cut and carry practice or by allowing the animals to graze themselves. Cattle productivity is generally low. Under such systems, Wiryosuhanto (1999) reported the following cattle performances: calving rates 22%, calves mortality rate 18%, calving intervals 15-17 months, and cow mortality rate 2.7%. Some studies (Doho, 1989; Marsetyo *et al*., 2006; ACIAR, 2008) have indicated that native grasses are not able to meet the nutrient requirements of growing calves and the animals will exhibit low growth rates when the native grass is used as the only source of nutrients. This is not surprising because native grasses contain low levels of nutrient; ACIAR (2008) reported a typical nitrogen content of native grasses between 5 and 8%. Availability and nutritional qualities of native grasses are also reduced during dry seasons with a direct impact on animal performances. Wirdahayati *et al*. (1998) and Damry *et al*. (2008) reported that the growth rates of Bali cattle grazing in native pastures during rainy seasons were 0.25-0.50 kg/day, but the animals lost 20% of their body weight during dry seasons.

Introduction of new grass species is one approach that may overcome the low nutritional contents and seasonal availability of grasses for beef cattle production system. The introduced grass has to be tropical in origin or highly adaptable to tropical environments and has appreciably high production rates and nutrient contents. This effort will ensure a continuous supply of feed to beef cattle throughout the year.

One of the tropical grasses seems to be promising is *Brachiaria mulato*. Currently there are two Mulato cultivars available: Mulato I