Effect of Cattle Manure and Chemical Fertilizers on the Dry Matter Yield of Plicatulum (Pennisetum plicatulum)

Churereat Satjipanon¹ Chid Yuthavoravit²
Salaikarn Jienjitcharoon³ and Chaleo Srichoo⁴

The experiment was conducted at Satun Animal Nutrition Station to study the effect of cattle manure and chemical fertilizers and the combined effect on the dry matter yield and chemical composition of plicatulum. The experiment was laid out in randomized complete block design. The treatments were no fertilizer, cattle manure 6.25 ton/ha, 187.5 kg/ha (12-24-12), 375 kg/ha (12-24-12), cattle manure 6.25 ton/ha mixed with 187.5 kg/ha (12-24-12) cattle manure 6.25 ton/ha mixed with 375 kg/ha, 187.5 kg/ha (15-15-15), 375 kg/ha (15-15-15), cattle manure 6.25 ton/ha mixed with 187.5 kg/ha (15-15-15) and cattle manure 6.25 ton/ha mixed with 375 kg/ha. Cattle manure and chemical fertilizers were applied one time in the first year, but only chemical fertilizers applied again in the second year. The grass was cut for every 40 days, cutting four times in the first year and five times in the second year. Reports are on dry basis.

The results revealed that dry matter yields obtained from cattle manure or chemical fertilizers were increased. Maximum dry matter yields were 11 and 10.8 ton/ha in the first and the second year respectively. There were derived from applying cattle manure 6.25 ton/ha mixed with 187.5 kg/ha of 12-24-12 (N-P-K)
Application of cattle manure and chemical fertilizers increased phosphorus and calcium contents in plicatulum grass, but protein contents were not increased. The highest protein phosphorus and calcium yield in the first year were 581, 25 and 69.5 kg/ha respectively. In the second year were 646.9, 11 and 82.9 kg/ha respectively.

Cattle manure and chemical fertilizers application increased the concentration of phosphorus and calcium in soil and had a little effect on pH and organic matter, but potassium, sulfur, magnesium, manganese and sodium concentration decreased.

Research Project No. 13-0202-27

1 Forage Crop Research Group.
2 Sturn Animal Nutrition Station.
3 Animal Nutrition Analysis Lab.
4 Tung Kular Ronghai Animal Nutrition Station.