SURFACE-APPLIED LIMESTONE ON INTENSIVELY MANAGED TROPICAL GRASS PASTURES

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Very little is known about surface applied limestone needed by intensively N-fertilized tropical grass pastures. The objective of this study was to find out the optimal amount and the frequency of limestone application on *Brachiaria decumbens* pastures receiving 100 kg/ha/cutting of N as ammonium sulphate, each 30-day resting period in the rainy season. In a randomized block design, with four replications, doses of 0, 1, 2, 4 and 8 t/ha of limestone were tested. Additionally, the following treatments were tested: 2 t/ha of limestone with annual maintenance doses of 1 t/ha; 4 t/ha buried in the soil; and 4 t/ha without NK-fertilizer. Forage production was measured, and its quality analyzed. Production curves of the first 2 years did indicate 4.5 t/ha of lime applied on the surface as the best dose. No significant differences appeared among limestone doses, using nitrogen. The worst treatment was that without N-fertilizer. Limestone buried in the soil did delay forage production in about 60 days, but provided the best results in raising pH-CaCl2 values to 5.8 in soil depth, and an accumulated non significant higher forage yield after 8 cuttings. Limestone dose of 8 t/ha applied on soil surface will improve pH-CaCl2 values in the 10-cm surface soil layer from 4.2 to 5.0 in 70 days, reaching the maximum value of 6.5 at 2.5 cm, in an Oxisol with 27% clay content. These initial data, considering environmental safety with lesser soil losses, suggest that pastures can receive lime on soil surface without hampering forage yield.