

Effects of N fertilizer on the contents of NO_3^- -N in napiergrass ⁽¹⁾

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Abstract

Objective of this study was to determine the effects of fertilizer on the accumulation of NO_3^- -N content in napiergrass (*Pennisetum purpurem*). Five levels of N fertilizer, i.e., 0, 300, 600, 900 and 1,200 kg N/ha/year were applied to the pasture of napiergrass Taishu No2. (NP cv Taishu 2). The results showed that the NO_3^- -N content of whole plant of napiergrass increased as the levels of N fertilizer applied increased. The changes for NO_3^- -N content were much more significant than those of NH_4^+ -N content. The NO_3^- -N content of NP cv Taishu 2 reached to 913 mg/kg with N fertilizer 1,200 kg/ha/year applied, while, NO_3^- -N content was only 543 mg/kg with N fertilizer 900 kg/ha/year applied. The percentages of NO_3^- -N or NH_4^+ -N to total nitrogen (NO_3^- / N or NH_4^+ / N) also increased as level of N fertilizer applied increased. However, no significant difference was observed for NO_3^- / N as level of N fertilizer applied exceeded beyond 600 kg/ha. Both contents of the NO_3^- -N and NH_4^+ -N in stem were much higher than those in leaf. The content of NO_3^- -N in stem reached to 1,023 mg/kg with N fertilizer 1,200 kg/ha/year. The percentages of NO_3^- / N and NH_4^+ / N in stem increased significantly as the levels of N fertilizer applied increased, while no significant difference was observed for those in leaf. In addition, no significant difference was observed for forage yield as the level of N fertilizer was exceeded beyond 600 kg/ha. It was suggested that the level of N fertilizer applied recommended for NP cv Taishu 2 was recommended 900 kg N/ha/year, which was adequate for both forage yield and crude protein content. Simultaneously, the NO_3^- -N content in napiergrass tissue would not exceed the harmful level to affect the health of animal health.

Key words: Nitrogen fertilizer, Nitrate nitrogen, Napiergrass (*Pennisetum purpurem*).

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