

INOCULATION, LIMING AND PHOSPHORUS FERTILIZATION  
OF TWO FORAGE LEGUMES GROWN IN ANNAM CLAY


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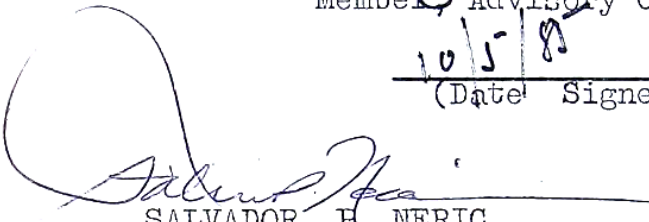
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The thesis attached hereto, entitled "INOCULATION,  
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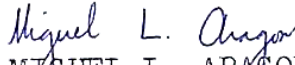
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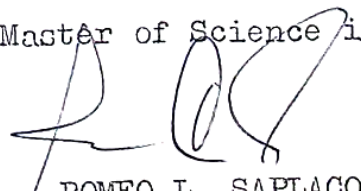
  
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ALICE D. ALCARAZ

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## ABSTRACT

ALCARAZ, ALICIA D. Institute of Graduate Studies,  
Central Luzon State University, Muñoz, Nueva Ecija,  
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PHOSPHORUS FERTILIZATION OF TWO FORAGE LEGUMES GROWN  
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A screenhouse study was conducted from November 1984 to May 1985 on the inoculation, liming and phosphorus fertilization of two forage legumes, namely: Stylosanthes sp. (Cook) and Leucaena leucocephala (Lam.) de Wit. grown in Annam clay soil (pH = 5.2, OM = 1.36%, P = 1 ppm, Al = 1.2 me/100 g).

The treatments consisted of three inoculations (uninoculated, inoculated, and 30 kg N/ha), two levels of lime (0 and 7 t/ha) and two levels of phosphorus (0 and 90 kg P<sub>2</sub>O<sub>5</sub>/ha). Arranged in a 3 x 2 x 2 factorial in Completely Randomized Design, the different treatments and their effects on the two forage legumes were evaluated in two cutting frequencies.

Inoculation improved the herbage and dry matter yields of Stylosanthes in the first and second cuttings. It also increased nodulation of which nitrogen application failed to do. Likewise, nitrogen

application had favorable effects on the herbage and dry matter yields of the plants in the first cutting but this effect was not significant in the second cutting.

Similarly, the favorable effect of lime on the herbage and dry matter yields of *Stylosanthes* was evident in the second cutting. In contrast, phosphorus fertilization alone did not show favorable effects to the plant. However, along with inoculation and liming, phosphorus fertilization proved effective in increasing the herbage and dry matter yields of *Stylosanthes*.

Inoculation and phosphorus fertilization reduced the herbage and dry matter yields, root and nodule weights of *Leucaena* but with lime application, the herbage and dry matter yields of the plants were increased in the second cutting only. Phosphorus fertilization increased the herbage and dry matter yields of nitrogen-treated plants.

In general, liming the soil increased the pH and exchangeable Ca but decreased the toxic concentrations of Fe, Mn, and Cu.

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