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256-12 Growth of Tropical Legume Cover Crops As Influenced by Nitrogen Fertilization and Rhizobia.

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Tropical legume cover crops are important components in cropping systems due to their role in improving soil quality. Information is limited on the influence of nitrogen (N) fertilization on growth of tropical legume cover crops grown on Oxisols. A greenhouse experiment was conducted to evaluate the influence of N fertilization with or without rhizobial inoculation on growth and shoot efficiency index of 10 important tropical cover crops. Nitrogen treatment were: i) 0 mg N kg<sup>-1</sup> (control or N<sub>0</sub>), ii) 0 mg N kg<sup>-1</sup> + inoculation with Bradyrhizobial strains (N<sub>1</sub>), iii) 100 mg N kg<sup>-1</sup> + inoculation with Bradyrhizobial strains (N<sub>2</sub>), and iv) 200 mg N kg<sup>-1</sup> of soil (N<sub>3</sub>). The N X cover crops interactions were significant for shoot dry weight, root dry weight, maximal root length and specific root length, indicating that cover crop performance varied with varying N rates and inoculation treatments. Shoot dry weight is considered an important growth trait in cover crops and overall, maximal shoot dry weight was produced at 100 mg N kg<sup>-1</sup> + inoculation treatment. Based on shoot dry weight efficiency index, cover crops were classified as efficient, moderately efficient and inefficient in N use efficiency. Overall, the efficient cover crops were lablab, gray velvet bean, jack bean and black velvet bean and inefficient cover crops were pueraria, calopo, crotalaria, smooth crotalaria and showy crotalaria. Pigeonpea was classified as moderately efficient in producing shoot dry weight.

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