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Response of irrigated common bean to nitrogen fertilization of two forage species used as previous cover crops

Nidia Raquel Costa (1), Marcelo Andreotti (1), Cristiano Magalhães Pariz (1), Nelson de Araújo Ulian (1), Rafael Montanari (2), Maila Terra Gioia (1), and Antonio Paz González (3)

(1) State University of São Paulo, Campus de Ilha Solteira, SP, Brazil.email: nidiamagrela@hotmail.com, (2) University of State of Mato Grosso do Sul, MS, Brazil., (3) University of Coruña, Spain.

In tropical conditions, benefits of rotations that include cover crops under no-tillage are widely recognized. The primary function of cover crops is to produce biomass during periods where the main crop is not growing. In addition, cover crops introduced before or after the main commercial crop are were efficient in nutrient cycling, because they are able to recycle a major share of nutrients which would otherwise be leached, The aim of this study was to assess the residual effect of fertilization of two forage species (*Barchairia brizantha* and *Brachiaria ruziziensis*), used as previous cover crop, on the nutrient status of irrigated common bean as well as on dry mass production, various plant parameters and soil properties. A field trial was carried out in the experimental farm of the State University of São Paulo, campus of Ilha Solteira. This farm is located in Selviría (MS, Brazil) 20º 20´05 S latitude and 51º 24´26´´ W longitude and 335 m a.s.l. The climate type us tropical (Aw, according to Köppen) and the soil is an Oxisol. The experimental design consisted in a random 2 x5 factorial design with four replications. Treatments were two forage grass species of the genus *Brachiaria* (*B. brizantha and B. ruziziensis*) and five doses of nitrogen (0, 50, 100, 150 and 200 kg N ha^{-1}) applied as urea. Common bean dry matter production was significantly higher after *B. brizantha* than after *B. ruziziensis* and a similar result was obtained for P and K leaf contents. Nitrogen doses influenced leaf Ca and Mg contents. Both forage grass species ameliorate soil nutrient status, increasing soil Ca and Mg contents.