Fertilizer Recommendation : Correlation and Calibration Study of Soil P Test for Yard Long Bean (*Vigna unguilata* L) on Ultisols in Nanggung-Bogor

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ABSTRACT

Yard long beans (*Vigna unguilata* L.) variety 777 was grown in Ultisols, which typical have low pH and high P-fixation to determine the best correlation of soil extraction methods for soil P with yields and to develop soil P response categories. The research was conducted at SANREM base camp in Hambaro Village, Nanggung, Bogor, Indonesia from April-Augusts 2008. Treatments were arranged in Split Plot Design with three replications. The main plot was soil P status of 0X, ¼X, ½X, ¾X and X, which is X=1590.5 kg SP-36 (36% P_2O_5) ha^{-1} applied one month before planting. The sub plots were P application rate of 0, 75, 150, 225 and 300 kg P_2O_5 ha^{-1}. Yard long beans planted in double rows per bed, 60 cm between rows and 25 cm within rows, 2 seed per hole with plot size of 1.5 x 5 m. Coefficient correlation (r) of extraction reagent Olsen, Bray-1, HCl 25%, and Mechlich-1 were 0.772, 0.765, 0.755, and 0.732, respectively. Base on Olsen soil testing methods, soil response category very low, low, medium, and high were (ppm P_2O_5) ≤18.40, >18.40-<117.27, >18.40 <117.27, and ≥267,04 extracted-P, respectively. Whereas base on Bray-1 soil testing methods, soil response category low, medium, and high were (ppm P_2O_5) ≤87.81, >87.81-<233.78, and ≥233.78 extracted-P, respectively. Fertilizer recommendation base Olsen soil test for low response category was 185.75 kg ha^{-1} P_2O_5, and for medium soil category was 175.97 kg ha^{-1} P_2O_5., whereas by Bray-1 soil test for low response category was 184.31 kg ha^{-1} P_2O_5, and for medium soil category was 161.39 kg ha^{-1} P_2O_5.