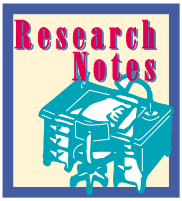
Indonesia: Stover and Potassium Management in an Upland Rice-Soybean Rotation on an Indonesian Ultisol



The objective of the study was to determine the effects of potassium (K) fertilization and stover management on crop yields and soil properties of a Typic Kanhapludult. A six-crop rotation, including cowpea, rice and soybean, was grown over a two-year period. Muriate of potash (KCl) was applied at rates of 70 and 250 kg K/ha to the first crop (only) and as a total of 250 and 600 kg K/ha to several crops. The effect of stover removal was evaluated for each K rate.

Results indicated that stover should be returned to the field when possible, since it substantially reduces the need for K fertilizer in a rice-soybean cropping system. For example, when stover was returned to the study field, a one-time application of 75 kg K/ha sustained up to six sequential plantings of the three crops over a period of 24 months. When stover was removed, an additional 35 to 45 kg K/ha per crop was required to maintain soil K above the critical levels for rice and soybean. Other results of the research:

- Researchers suggested that when stover is removed, lower K rates to each crop rather than large single applications can reduce luxury K uptake.
- Manure can be used to replace some of the K at a rate of about 1 tonne per 18 kg of KCl fertilizer.
- Stover removal hastened the depletion of soil magnesium (Mg). **BCI**

Source: Dierolf, T.S. and R.S. Yost. 2000. Agron. J. 92:106-114.

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