

Effect of Potassium and Magnesium Sources on Coffee Yield and Fruit Quality in Brazil

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Brazil has been the world's largest producer and exporter of coffee for at least 150 years. However, average yields remain low at 900 kg/ha. Potassium fertilization is one of the main factors influencing the nutritional status of coffee plants as well as the chemical composition of coffee beans. Previous studies show that yield and coffee bean size can increase proportionally with an increase in the K supply to plants. Also, plants fertilized with potassium magnesium sulfate, or K-Mag[®], (22% K₂O and 11% MgO) have been reported to produce beans with better beverage quality as compared to plants fertilized with only potassium chloride (KCl). The objective of this experiment was to evaluate the agronomic efficiency and bean quality as influenced by KCl and K-Mag[®] fertilization. Two coffee varieties ('Catuaí Amarelo IAC 62' and 'Catuaí Vermelho 144') were studied within two major coffee-producing areas (Mococa, São Paulo and Patrocínio, Minas Gerais).

Soil testing results showed that the average levels of macronutrients and micronutrients did not vary with treatment, except for S, which increased considerably with the use of K-Mag[®]. In the first year, there was no variation in leaf analysis, regardless of K rate or source. The results of yield and maturity showed no significant differences. The results for the 2007/08 season showed differences in leaf content of Cl⁻ and Mg among the two K sources, with higher Cl⁻ content when KCl was utilized and higher Mg content when K-Mag[®] was the source applied. Although leaf Cl⁻ contents reached very high amounts (4,500 mg/kg), no toxicity symptoms were observed. New results regarding crop yield in 2008 will be available soon.