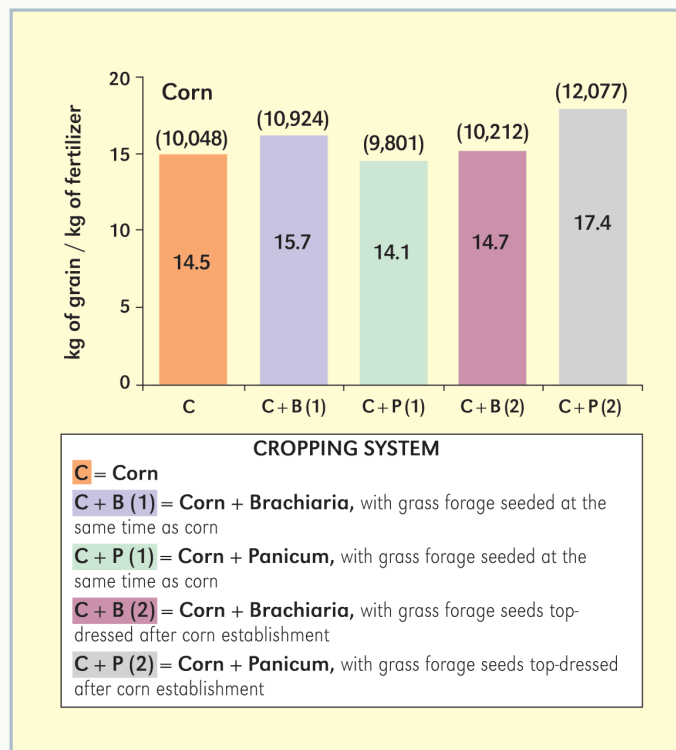


Case Study 7.1-1 Influence of cropping system on nutrient efficiency and crop yields in Brazil. Dry winter seasons prevent farmers in Brazil from successful adoption of sustainable no-till systems. Consequently, these soils generally have low input of crop residues. The intercropping of cereals with tropical forages (most especially Brachiaria or Panicum) has been successfully adopted in several regions of Brazil as a means to protect the soil and obtain higher nutrient use efficiency, higher yields, and also higher economic return. The Figure shows 3-year average corn yields confirming such improvements. Corn yield increased from 10,048 kg/ha, when corn was the only crop, to 12,077 kg/ha when Panicum grass was intercropped with corn. The choice of the right grass intercrop species and seeding time increased nutrient use efficiency (amount of grain produced per unit of fertilizer applied) by 20%. As an example of economic feasibility, in one of the farms of Peeters' agro company in Brazil, there was a 100% increase in profit due to the adoption of a cropping system alternating soybean, corn second crop, and Brachiaria grass in one year with cotton in the other year, as opposed to cotton every year. In such systems, the forage grasses are cultivated either alone or intercropped with grain crops. Such information constitutes a clear example of how the adequate adaptation of practices in terms of correct crop rotation and intercropping can lead to more success for the farm. It is believed that similar cropping systems can be expanded to other areas of the world. **Source:** Crusciol, C.A.C., et al. 2010. Better Crops with Plant Food. 94:2, pp.14-16.



Submitted by L. Prochow, IPNI, Brazil, December 2011.