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The Potential Benefit of green manures and inorganic fertilizer in cereal production on contrasting soils in eastern Uganda

Nitrogen is the most limiting nutrient for annual crops. The use of urea fertilizers or green manures Azolla, and Velvet bean (*Mucuna pruriens*) was investigated in contrasting agro-ecological zones. Mucuna produced 3 - 8 t ha-1 of dry matter, accumulated 80 - 200 kg N ha-1, with approximately 50% coming directly from the atmosphere. Maize farmers stand to gain 1.3 - 2.7 t ha-1 of grain from fertilizers as well as from the use of Mucuna green manure. Farmers cultivating rice under rain-fed conditions stand to gain 0.7 t ha-1of grain by using either fertilizers or Mucuna green manure, compared to 1.2 - 2.5 t ha-1 from fertilizers as well as from the use of Azolla green manure under irrigation. In economic terms, farmers are not even getting local market returns on their labour on poor soils with their current practice. The use of fertilizers easily pays for itself in the rice system, and only on the high-fertility soils for maize, particularly when rainfall is secure. The economic returns of a Mucuna relay crop are an improvement for all farmers. None will lose money by adopting this practice.