



Deutscher Tropentag, October 11-13, 2005, Hohenheim

“The Global Food & Product Chain—  
Dynamics, Innovations, Conflicts, Strategies”

## Protein Analysis and Phosphorus Use Efficiency of Landraces and Improved Green Gram Cultivars from Myanmar

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### Abstract

Throughout S.E. Asia, mungbean or green gram (*Vigna radiata* L.) has been an important short-season grain legume and staple diet of man and livestock since prehistoric times. In Myanmar, green gram is an important component of the rice-based cropping system, however, current yields of around 800 kg ha<sup>-1</sup> are much below its yield potential of 3000 kg ha<sup>-1</sup>. The reasons for this shortfall are as under-investigated as is the genetic response to the application of phosphorus (P) which is critically low in many Myanmar soils. For green gram quality, the concentration of lysine, an essential amino acid is particularly important given its scarcity in many cereal-based diets of Southeast Asia. The purpose of this study therefore was to investigate the effects of P application on the root and shoot growth, yield and its components for a range of green gram varieties, and to analyse the protein concentration (amino acid composition) in green gram seed. From 2001 to 2003 field experiments were conducted under rain-fed conditions in Yezin and Nyaung Oo. Fifteen landraces and five introduced green gram cultivars were grown at two level of P (0 and 15 kg ha<sup>-1</sup>). There were large genotypic effects for P application on shoot and root growth and significance genotypic differences in the amino acid profile in TDM were found. One of the advantages of phosphorus application was a reduced pest and plant virus infestation. The rate and placements of phosphorus fertiliser to these promising greengram cultivars should be further studied in Myanmar with new locations.

**Keywords:** Green gram, Myanmar, phosphorus, protein