

## **Abstract**

We investigated the response of cowpea (*Vigna unguiculata* (L.) Walp) to integrated soil fertility management (ISFM) on nodule formation, growth and nitrogen fixation in two field sites with contrasting rainfall amounts in a semi-arid environment. Treatments used included an unamended control, manure, TSP and manure+TSP. Results indicated that nutrient amendments were most effective during the drier rain season compared to the wetter season. In addition, combination of organic and inorganic amendments was more effective during the drier rain season. Further, low rainfall severely reduced nodule and shoot biomass but not root biomass. So far we concluded that nutrient addition could be necessary for cowpea growth during drier seasons. Assessment of biological nitrogen fixation (BNF) revealed a BNF of between 46 to 53% with significantly ( $p < 0.05$ ) higher N fixed in wetter compared to the drier study site. We further concluded that BNF was reduced by low rainfall amounts which also lowered nodulation and shoot biomass.