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Farmers' Agronomic and Social Evaluation of Cowpea Technologies in the Guinea Savanna Zones of Ghana.

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Cowpea plays an important role in household food and income security in smallholders farming systems in the Guinea Savanna zones of Ghana. Yields are however low, hardly exceeding 600 kg per hectare. Within the framework of N2Africa project, several technologies aimed at raising the grain yields beyond 600 kg per hectare have been introduced to farmers. These technologies include the introduction of superior cowpea genotypes, use of phosphorus fertilizers, optimum plant spacing and other good agricultural practices. We evaluated these technologies together with smallholder farmers in the two savanna agro-ecologies in the three Northern Regions of Ghana. Cowpea grain yield under farmers' traditional practices ranged from 710 kg ha⁻¹ in the Upper East Region to 820 kg ha⁻¹ in the Northern region; grain yield under phosphorus fertilized plots ranged from 1020 kg ha⁻¹ in the Upper West Region to 1200 kg ha⁻¹ in the Northern Region. Phosphorus fertilizer application resulted in 34%, 46% and 69% increase in grain yield over the traditional farmers' practices in the Upper West, Northern and Upper East Regions respectively. There were no significant differences among the various cowpea varieties evaluated with farmers although the improved varieties always yielded higher than the local varieties. Farmers' criteria for ranking cowpea included maturity period, yield and seed size. IT97k-499-35 was ranked by the farmers as the most preferred cowpea variety due to its white seed type, early maturity and good market value. While farmers appreciated the increase in grain yield due to phosphorus fertilizer application, access to the input still remains a challenge.

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Participatory Action Research to Improve Farmer Decision Making in Integrated Soil Fertility Management in Mozambique.

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Common bean (*Phaseolus vulgaris* L.) and maize are important food security and cash crops for smallholder farmers in study communities in Gurué district in northern Mozambique (baseline survey, 2014). Yields for beans under rainfed conditions range from 0.4 to 0.8 ton/ha. This low yield for beans is due to poor soil fertility, water stress, pest and disease and lack of information on best agronomic practices. To address these challenges, project researchers are partnering with agricultural colleges, development organizations, and extension services. Participatory research and promotion activities are strengthening capacity to increase bean productivity. Key activities undertaken include: on farm testing of ISFM technologies that are targeted to identified soil nutrient deficiencies, field days, development of decision support aids for farmers, and promotion of 'best bet' technologies, including use of mobile phones (audio and video information). Enhancing researchers' capabilities with GIS and remote sensing is helping the project team to integrate local knowledge and technical information for clustering soils types, assessing their suitability to bean production. Socio-economic analyses of baseline household survey data are identifying challenges and opportunities for improving productivity and marketing in maize-bean production systems. This will enable the project team to develop decision support aids that reflect producers' priorities and constraints in concert with soil and cropping system characteristics for improved bean production.

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Growth Performance of Weaner Rabbits Fed Cowpea Based Rations As Protein Source.

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The study was conducted to investigate the effect of varying levels of cowpea in maize diets on the performance of weaner rabbits. Twenty-four mongrel rabbits of both sexes, 4 - 5 weeks old with an average weight of 624g were randomly distributed to four dietary treatments with six rabbits per treatment for 42 days. The four diets were formulated using cow peas which had been dehulled and fermented for 24 hours as a way of reducing antinutritional factors. The control Treatment 1 contained 18% CP from soybean while Treatments 2, 3 and 4 had 10% CP, 15% CP and 20% CP respectively based on cowpea. Clean cool water was offered ad libitum and feed offered and eaten was recorded daily. The rabbits were weighed weekly to determine body weight changes. Rabbits fed on diet 2 had significantly ($p < 0.05$) lower feed intake compared to other diets. Rabbits fed on diet 1 gained significantly ($p < 0.05$) more weight (500g) than rabbits fed on diet 2 (180g) after 5 weeks. The results indicate that cowpea can be used safely as a protein source in rabbit diets at inclusion level of up to 20% CP provided it is well processed.