

Productivity of hybrid maize-cowpea cropping systems in northern Ghana

Introduction

The use of hybrid maize varieties is on the increase in northern Ghana. Compared to the open-pollinated maize varieties, data on the performance of the hybrids in association with grain legumes such as cowpea, soybean and groundnut is limited. Productivity of hybrid and open-pollinated maize grown in association with erect and spreading cowpea types was evaluated on-farm in Africa RISING intervention communities in northern Ghana.

Methods

A split-split plot design with four replicates was used. Main-plots were three: erect cowpea (Songotra), spreading cowpea (Sanzi) and no cowpea (sole maize). Sub-plots were four maize varieties – 3 hybrids (Pan53, Etubi, Mamaba) and on open-pollinated variety (Obatampa). Grain yield and net returns were estimated.

Results summary

Grain yields (Figure 1) and net returns (Figure 2) varied among cropping systems. Land Equivalent Ratios of the intercrops were greater than 1, suggesting that productivity of the intercrops was higher than the monocrops.

Conclusions

Sole and intercrops of Pan 53 maize hybrid with either erect or spreading cowpea types could result in higher returns on investment.

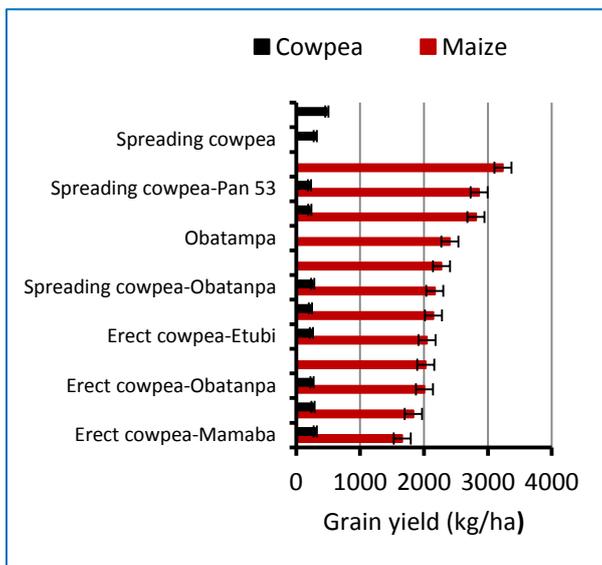


Figure 1: Hybrid maize and cowpea grain yields

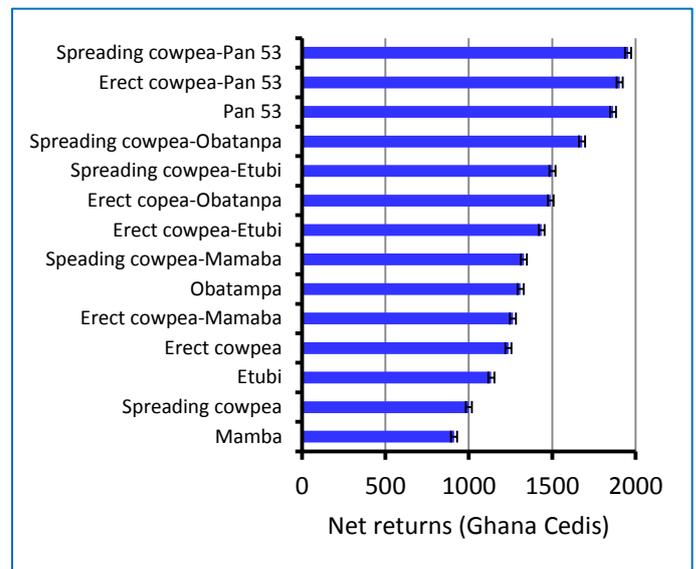


Figure 2: Net returns from maize and cowpea cropping systems



Photo 1: Maize-erect cowpea intercrop



Photo 2: Sole maize



The Africa Research In Sustainable Intensification for the Next Generation (Africa RISING) program comprises three research-for-development projects supported by the United States Agency for International Development as part of the U.S. government's Feed the Future initiative.

Through action research and development partnerships, Africa RISING will create opportunities for smallholder farm households to move out of hunger and poverty through sustainably intensified farming systems that improve food, nutrition, and income security, particularly for women and children, and conserve or enhance the natural resource base.

The three projects are led by the International Institute of Tropical Agriculture (in West Africa and East and Southern Africa) and the International Livestock Research Institute (in the Ethiopian Highlands). The International Food Policy Research Institute leads an associated project on monitoring, evaluation and impact assessment.

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