Introduction

Cowpea (Vigna unguiculata) is one of the top leafy vegetables in Uganda grown for both its leaves and seed. Although young leaves are an essential source of protein and micronutrients not only for resource-poor subsistence farmers, and their consumption is more popular than that of seeds in the Eastern and Northern districts, leaf yield levels have never been researched and documented.

The level by which seed yield is affected by defoliation is dependent on a complex interaction of factors like growth habit and period of a cultivar or landrace, age of leaves harvested, intensity and frequency of leaf-harvesting, and cropping system. None of these factors influencing seed yield has been assessed in the varieties/landraces grown in Uganda under field conditions.

The objective of this study was to investigate the extent to which frequent leaf harvesting affects seed yield and to determine whether leaf and seed yields of mixtures are higher and more stable than those of individual varieties.

The research was performed within the project “Promotion of Neglected Indigenous Leafy and Legume Vegetable Crops for Nutritional Health in Eastern and Southern Africa (ProNIVA)” conducted by the World Vegetable Center (AVRDC) and partners.

Materials and Methods

- Yield evaluations were conducted at 2 sites in Soroti district (On station at NaSARRI, 01°32'N, 033°26'E, 1140 m asl. and on farm at Kikota village, 01°32'N, 033°28'E, 1077 m asl.) and 1 site in Kumi district (on farm at Kogili village, 01°32'N, 033°27'E, 1119 m asl.) from April to August 2008.
- Six cowpea varieties differing in morphology and phenology were planted in a 1:1 cowpea/maize (Situka 1 variety) intercrop according to local traditions. Four cowpea varieties were subjected to all possible 2-way, 3-way & 4-way combinations; 2 landraces were used as local checks.
- Leaf harvesting started at 4 weeks after planting cowpea and continued every 2 weeks until flowering. Three harvests were made at NaSARRI and Kikota village, while 4 leaf harvests were possible at Kogili village. The total dry matter (DM) and seed yields from the individual varieties and all their possible mixtures are presented.

Results and Conclusions

- On farm (Kikota and Kogili villages), the mixed (leaf and seed) harvesting strategy was advantageous over harvesting seed alone, different from on station.
- Depending on location and variety or variety mixture, bi-weekly harvesting of about 25-50% of young, tender leaves decreased seed yield by 5 to 70% compared to unharvested plants; however, especially at Kikota village, seed yield of almost all component varieties increased by 10 to 35% over the non leaf-harvested treatment.
- Variety mixtures had neither an advantage nor a disadvantage over individual components for cowpea leaf or seed yield levels; mixture yields depended on the yield of individual component varieties.
- Leaf yield stability across environments (assessed by ‘ecovalence’) was high and increased with increasing number of component varieties in a mixture, there was no such mixture effect on seed yield.
- Nutritional quality, particularly crude protein content of cowpea leaves was high (CP 24-35% in the dry matter) and was not affected by mixing.
- The majority of farmers interviewed in the region, grow cowpea regularly for both leaves and seed. Although young leaves are an essential source of protein and micronutrients not only for resource-poor subsistence farmers, and their consumption is more popular than that of seeds in the Eastern and Northern districts, leaf yield levels have never been researched and documented.