1. Introduction

Intensified food crop production on low activity clay soils (Ultisols and Oxisols) observed in the humid forest zone of southern Cameroon are a result of increased food demand concentrated around urban centers. As a response, farmers no longer respect traditional fallow periods which has resulted declining productivity due to insufficient soil fertility replenishment and arable weed infestation. Improved rotational fallow systems based on Pueraria phaseoloides (tropical kudzu) is a promoted technology for fast soil fertility restoration and arable weed suppression. In this experiment we tested the application of a single pre-planting herbicide treatment as an alternative to slash and burn. Focus is to retain a protective mulch layer and simultaneously to arrest P. phaseoloides growth to avoid early competition with food crops after fallow.

2. Materials and methods:

In August 2007, an on-farm trial in Mtou (soils: acid Ultisol; rain: 1530 mm, bimodal; 3° 69’ N, 11° 69’ E) was established in a two year old P. phaseoloides dominated fallow field. Herbicide treatments were applied by a Glyphosate (Roundup, Monsanto®) spray at five different doses. All treatment plots (3x3m) were randomized over the field and replicated three times. Plots were visually scored on a weekly basis on relative soil cover. Vine height increments were observed in the humid forest zone of southern Cameroon are a result of increased food demand.

3. Results:

3.1. Vegetation cover

**Control**
- P. phaseoloides dominance
- Good weed suppression

**360 g/ha**
- Initial 40% reduction of P. phaseoloides cover
- Fast recovery
- Good weed suppression

**720 g/ha**
- Initial 30% reduction of P. phaseoloides cover
- Postponed recovery to 50 DAT
- Low number of escaping weeds

**1440 g/ha**
- Initial reduction to less than 20% of P. phaseoloides cover
- Higher weed incidence
- Presence of wild cocoyam may have affected the results

**2880 g/ha**
- Initial reduces to less than 10% of P. phaseoloides cover
- Slow initial recovery
- Progressive weed infestation

4. Conclusion

In an environment of increasing urban food demands, improved fallows for crop production can offer an opportunity for resource constrained peri-urban farmers in Cameroon. Our data show that reclamation of P. phaseoloides fallow systems by single pre-planting glyphosate application of 720 g/ha is suitable to create closed semi-live mulch layer. Weed suppression and nutrient release from slowly decomposing litter layer make it suitable for direct planting of short-season crops like maize, especially in a labour constrained environment. Additional treatment at 60 DAP is required to avoid crop damage by climbing on long-season crops like cassava.