

Although the adoption of chemical weed control in cassava is low in Africa, it is the most effective method of controlling weeds in cassava. Several studies show that herbicide-based weed control methods in cassava produce higher yields and income and saves labour (Fig. 5).

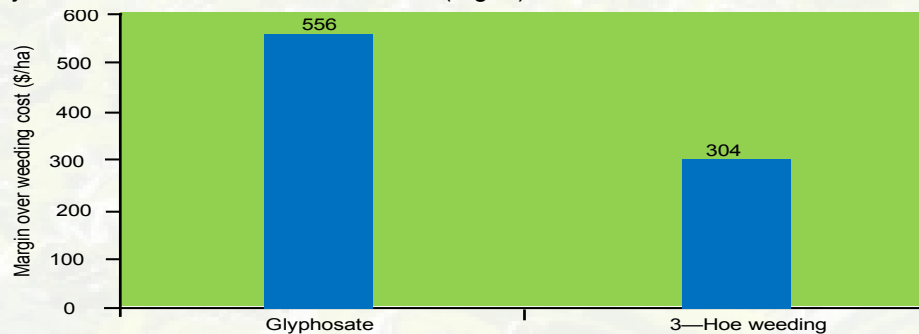


Figure 5. Financial return of cassava farms treated with herbicides and hoe-weeded three times.

### Conclusions and Recommendations

To control weeds effectively in cassava, a more general recommendation would be:

#### For annual weed control

Carry out adequate land preparation [Plough/till, harrow, ridge/mound].

Plant cassava and spray a pre-emergence herbicide immediately after planting e.g. Primextra Gold. Do a second spray of a post emergence herbicide directed to the weeds later in the season e.g. Touchdown Forte.

#### For perennial weed control

For perennial weeds such as Speargrass or Elephant grass, first spray a glyphosate-based herbicide when the weeds are at about 12 cm or one foot in height. Wait for 14 days and start your weed control as described above for annual weeds.

The current low yield on farmers fields in Africa can be markedly improved by applying safe, efficient and effective weed control options coupled with improved varieties sown in the right densities at the right time with adequate plant nutrition and pest control. Concerted effort is being made to identify integrated weed management solutions including new and safe herbicide chemistries that are sustainable for smallholder cassava farmers to achieve greater increases in productivity and incomes. This is being achieved through a five-year IITA project, "Sustainable Weed Management Technologies for Cassava Systems in Nigeria", supported by the Bill & Melinda Gates Foundation.

This project is divided into five major components:

- Development of appropriate agronomic practices of cassava production.
- Evaluation of new herbicides for safe and effective weed control in cassava.
- Integration of best agronomic practices and herbicides for effective weed control in cassava.
- Extension of improved weed management practices in cassava to farmers.
- Ensuring project impact through good governance and effective management strategies for result handover to national partners.

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## Unleashing the Yield Potential of Cassava in sub-Saharan Africa through Sustainable Weed Management Technologies



## Introduction

Cassava is extensively cultivated in the humid and sub-humid tropical regions of sub-Saharan Africa (SSA). It is mainly grown by smallholder farmers for food and more recently for income as it has become a major source of raw material for various industries.

The demand for cassava is increasing in Africa and this is driven by population growth, increasing industrial application of cassava, and rising food demand, as well as the effort of Government in some African countries to add value to cassava through processing into different food forms and animal feed.

Although SSA is the global leader of cassava production, a major challenge to sustained production is the low average yield obtained by smallholder farmers in Africa, compared with yields in Indonesia, India and Thailand, and research plots in SSA (Fig. 1).

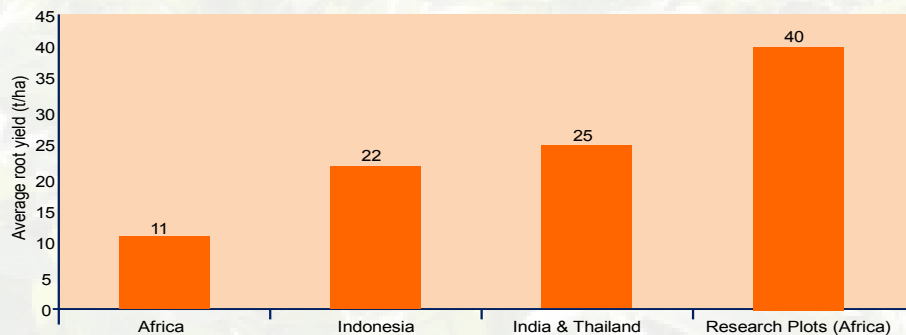


Figure 1. Average cassava storage root yields in farmers' fields in Africa, Indonesia, India, Thailand and Research plots in Africa.

Diverse factors are responsible for this low cassava productivity in SSA, but poor weed management is generally among the principal factors. Root yield reduction between 76-90% as a result of competition with weeds has been reported in Nigeria.

Currently, manual weed removal with hoe, cutlasses or other simple implements is the traditional and most dominant method of weed control in smallholder farms in Africa. In most communities, women, children and the aging farmers engage in this form of weed control (Fig. 2).



Figure 2. A young woman with a baby on her back and an ageing farmer carrying out weeding in a cassava farm with cutlass and hoe, respectively.

Manual weed control is expensive and consumes about 70% of household labour. Although, majority of farmers carry out three or more manual weed removals in cassava before the crop attains maturity, farmers have not adopted the recommendations for manual weed control in cassava.



Figure 3. Cassava farms abandoned to weeds.

The delay in timely weeding often lead to severe weed competition (Fig. 3).

## Materials and Methods

Several studies were conducted by Akobundu, 1981; Chikoye et al. 2001, 2002, 2006, 2006, 2007, Ezedinma et al. 2007 and Udensi et al. 2012 on various methods of weed control in Nigeria and Republic of Benin. These studies:

- Compared chemical method of weed control with manual methods in cassava.
- Assessed response of perennial weed in cassava to integrated weed management which included herbicides.
- Economics of weed control in cassava.
- Assessed factors influencing the adoption of chemical weed control by farmers in Southeastern Nigeria.

These studies and ongoing studies form the bases of the results and discussion as well as conclusions and recommendations.

## Results and Discussion

Although no specific herbicide has been developed for cassava, several commercially available herbicides have been evaluated and recommended to famers for weed control in cassava in Africa. However, the adoption of chemical weed control in cassava remains generally low.

The most popular herbicides among cassava famers are Glyphosate, Primextra, Paraquat and Atrazine and farmers use different formulations of these herbicides (Fig. 4).

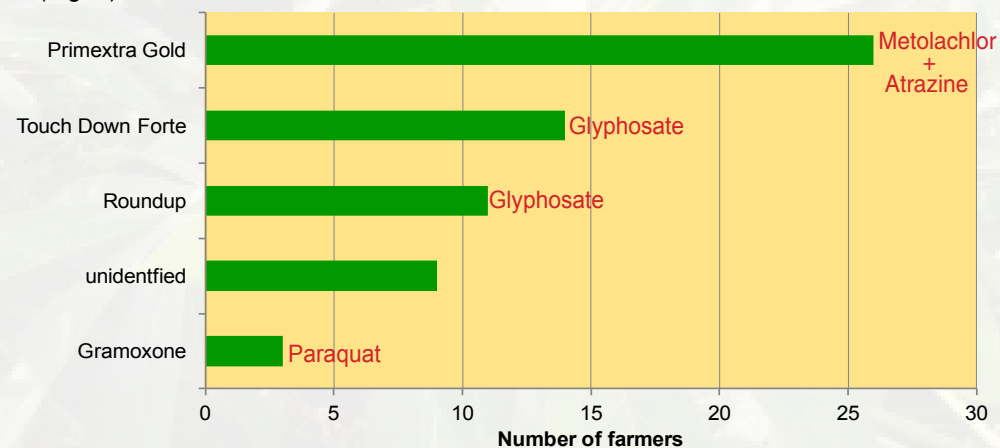


Figure 4. Some herbicides used by farmers in Southeastern Nigeria.