

## 2017 Annual Review and Work planning Meeting of Cassava Weed Management Project

### Up-date of the weeding machines

Engr. Diallo T.A., Stefan Hauser, Dixon, A., Ekeleme F., Kolawole P., Godwin A., Uche enne



International Institute of Tropical Agriculture, IITA.

27 to 28 March 2017

# The IITA Cassava Weed Management Project

- A 5 years project to respond to the devastating effects of weeds in Cassava farms in Nigeria.
- A way to reduce drudgery of hand weeding by women and children;
- It uses integrated approaches: Agronomic practices, Chemical and Mechanical controls.

## Selected Milestones On The Mechanical Component

- 2 mantis machines were imported;
- An IITA Technical Team and 3 Meetings of Engineers organized;
- 6 grand modifications were done on the imported Mantis machine;
- Using these modifications, 16 Mantis machines (small and large) were modified by consecutive meetings of the Team of Engineers(LTEs);
- 9 different tools including the modified Mantis machines were put to test for 2 years to ascertain their usability in cassava farms;
- During 2 years, out of the 9 machines above, 3 have been retained: Mantis Small, Mantis Large, Long hoe with packing and short hoe.
- Additional 20 Mantis (Big and Small) Machines have been imported and have all been modified;

# Summary On The Modifications Done

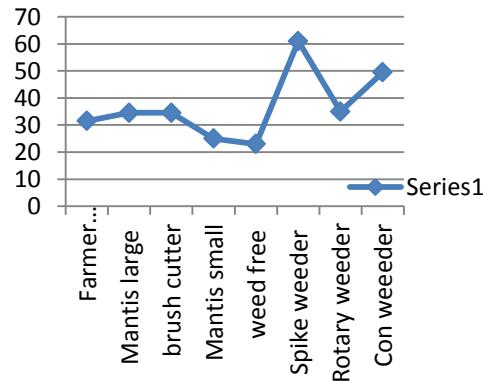
- **Ring** around the tines is installed;
- **Triangular metal plates** welded on top of the ring above. Efficiency of cuts increased, depths of cut further down to 3cm;
- **Metal plates** installed in the inner side of the tines. Inner clogging is reduced;
- **A metal cup fitted with scrappers constructed around the spindle** in-between the tines. The clogging was further reduced, better cutting of the weeds is achieved;
- **The upper cover of the tines is removed:** Clogging was completely removed.
- **A Support Wheel is added at the Back of the machine:** Good balancing, better handling and easier motion are achieved.
- **The 2<sup>nd</sup> LTEs** supervised the modifications on all the 14 other weeding machines;



## Extensive Testing And Selecting Best Treatments

- **Training:** May 25 -27, 2015, a 3 days training program organized for 23 machines operators from IITA and Partners institutions;
- **Establishing Plots for trial:** 72 plots established by IITA and each Partners (288 plots);
- **Actual weeding:** 4 Weeding Sessions at designated periods were conducted for all plots using 10 treatments;
- **Data collection:** on weed bio-mass, time spent, fuel used, breakages, final yields were collected;
- **Analysis of data:** Collected data were analyzed and the best treatments were selected;
- **Best Treatments are:** Mantis Small; Mantis Large, Long hoe with packing;

## Pictures of Extensive Testing And Selecting Best Treatments





## The 100% Local Mantis Machine: The Journey So Far

- **Tines:** Modified tines constructed (10 pairs);
- **Engine:** Engine, Engine seat, Throttle, Clutch, Cover for handles found in the local market and acquired;
- **Frames and handles:** Constructed using pipes from local market (10 pairs have been done);
- **Casted Housing:** Replaced by a welded housing;
- **Transmission shaft:** A new one has been constructed;
- **Shaft for tines:** fabricated;
- **Gearing System:** Worm and Pinion is in progress. Long work has been; there is hope;
- **Modified tines and Shaft:** fixed and is under testing;



## Pictures on the 100% Local Mantis Machine



100% IITA  
Weeding  
Machine



Cast Housing Replaced by  
a Welded one



Shaft , Worm and Gear



## Selected Milestones On The Wiggle Weeders

- **Imported Wiggle Weeder:** Received from USA
- **Testing Imported Wiggle Weeder:** Test is going on;
- **Local Sourcing of Parts for Wiggle Weeder:** Efforts are being made; many parts found and being incorporated;
- **Testing Locally Made Wiggle Weeder:** in progress;

## Pictures on the Wiggle Weeders



### Imported Wiggle Weeder



**Assembling  
The Locally  
Sourced  
Machine  
Parts**

Remaining  
work: Tine  
holders, bolt  
and nuts



## Let Celebrate Achievements And Focus On Future Targets



## Our Task:

To Help African Farmers  
Grow Cassava Without  
Weeds, Process It Without  
Drudgery and Therefore

Make More Profit.

May God Help Us



# Thank you