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

Up-date of the weeding machines


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 2nd 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;
100% IITA Weeding Machine

Cast Housing Replaced by a Welded one

Shaft, Worm and Gear

Pictures on the 100% Local Mantis Machine
Selected Milestones On The Wiggle Weeder

• 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;
Cassava Weed Management Project

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