

ME-328A

Proposed Date: 27 February 2020

Team: A12

Members: Aaron Apple, Beth Bell, Candice Can, Doug Dirt

Testing Plan (DID 5 – Force Required to Pull Plow)

Purpose: Test the plow in simulated Ugandan soil to see how much force is required to start moving the plow and continue pulling the plow.

Conducted By: All Members

Procedure:

- Using cell phone, video all tests.
- Using cell phone, photograph tests to include in report.
- 1) Set up cart at the back of the testing area and flatten the sand using the scraper
- 2) Pull the mechanical force sensor slowly until the flow begins to move, start the timer
- 3) Record the force required to start movement in the plow
- 4) Continue pulling at prescribed speed (75mm/sec, 120mm/sec, or 200mm/sec)
- 5) Record the force required to continue motion
- 6) Stop the timer after the plow has moved
- 7) Repeat for four (4) trials at a given speed
- 8) Repeat steps 1-6 for 3 different speeds identified in step 4.

Team test plan approval (all members sign):

Data Sheet

Data recorded by: _____ Signed: _____

Date conducted: _____

Table 1: Raw Data (Force Required to Pull Plow)

Trial #	Approx Tagret Speed*	Time to pull plow 600mm	Force to Start motion (N)	Force to Continue Motion (N)
1	Slow			
2	Slow			
3	Slow			
4	Slow			
5	Fast			
6	Fast			
7	Fast			
8	Fast			
9	Medium			
10	Medium			
11	Medium			
12	Medium			

Slow = 75mm/sec, Medium = 120mm/sec, Fast=200mm/sec



Figure 1: Test Set Up