Boosting Farm Incomes with Maize Production in Zambia

Godfrey Ejimakor[1], Tiberious Etyang[2], Leonard Sonnenschein[2*], Brian Gondwe[3], Violet Nkhoma[3], Sydney Mwamba[4], Douglas Mwasi[5], Chungu Chalilwe[5], and Dickson Matulula [5]

[1]North Carolina A&T State University, [2]Salvation Farming Solutions, LLC, [3]Zambia Agricultural Research Institute, [4]Policy Monitoring and Research Centre, and [5]Catholic Relief Services Zambia.

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About LASER PULSE

LASER (Long-term Assistance and SErvices for Research) PULSE (Partners for University-Led Solutions Engine) is a $70M program funded through USAID's Innovation, Technology, and Research Hub, that delivers research-driven solutions to field-sourced development challenges in USAID interest countries. A consortium led by Purdue University, with core partners Catholic Relief Services, Indiana University, Makerere University, and the University of Notre Dame, implements the LASER PULSE program through a growing network of 3,000+ researchers and development practitioners in 74 countries.

" Unless Africa uses modern technologies, our farmers' **outputs** will remain low and we will remain dependent on others to feed us."

Dr. Akinwum Adesina

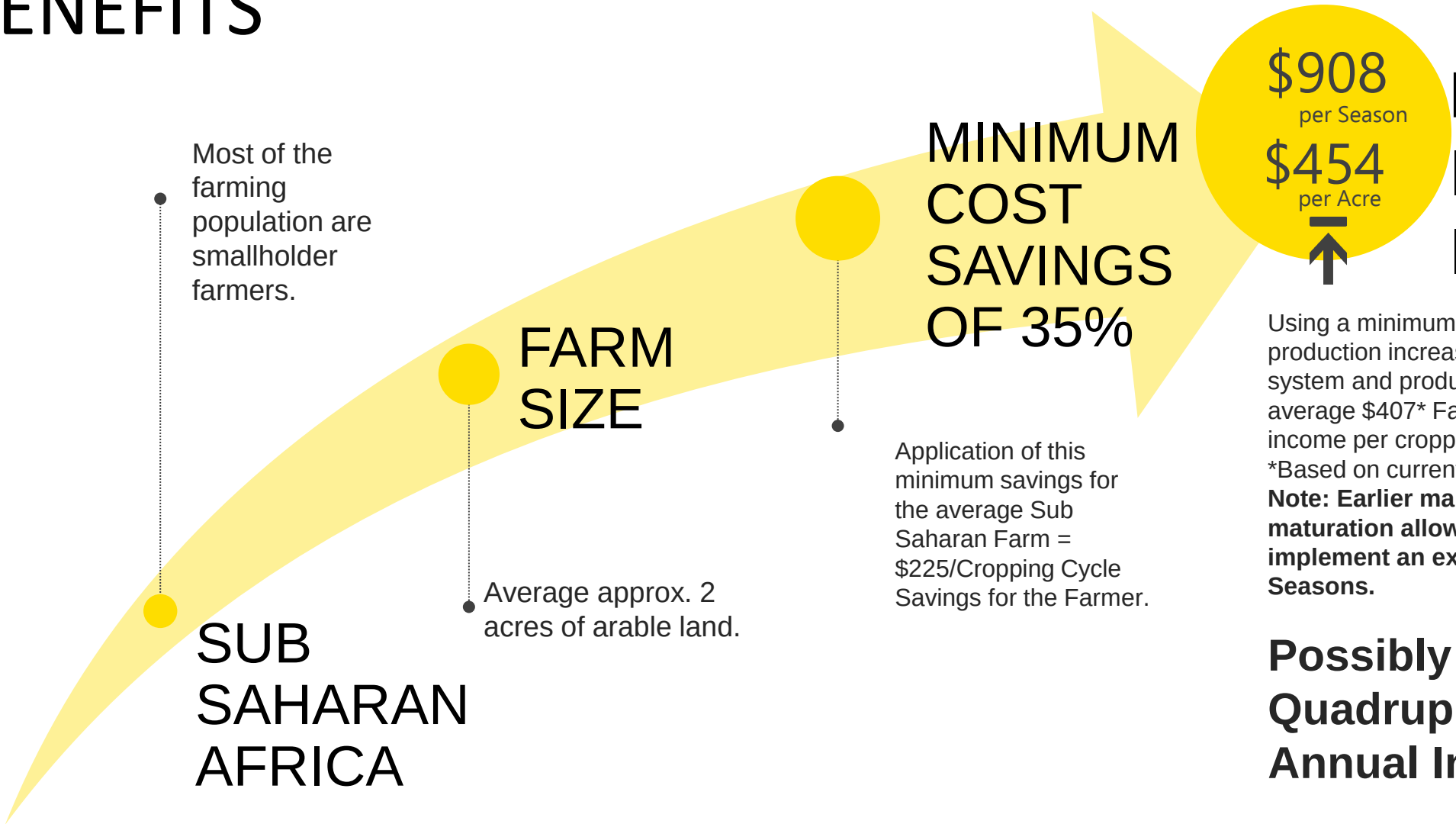
President, Africa Development Bank

The goal of the project is to improve the food security status of Zambia by improving the productivity of maize farmers in the country

Project Objectives

- Create awareness of Salvation Farming Solutions as a means of increasing productivity of maize farmers
- Demonstrate the effectiveness of using SFS production techniques in maize production on selected farms
- Train extension agents, key informants, and stakeholders on how to use SFS techniques in the production of maize

KEY AFRICAN FARMER AND GOVERNMENT BENEFITS



Farmer Income Increase!

Using a minimum 2X maize (corn) production increase applying the SFS system and products – Equates to an average $407* Farmer increased income per cropping season.
*Based on current market prices.
Note: Earlier maize (corn) maturation allows Farmers to implement an extra Cropping Seasons.

Possibly Quadrupling Annual Income!

Average Cost Benefit for using SFS products

Saving Type	Costs per Acre($)	$ Saved	%Savings/Benefits
Production Costs			
Field Soil Preparation	50	15	30%
Herbicide	15	7.5	50%
Seed Cost	60	15	25%
Fertilizer	277	200	72%
Pesticide Costs	50	25	50%
Average Production Savings	452	262.5	58%
Production Benefits			
Increased Yield	1040	347	133%
Silage Increase	700	204	129%
Crop to Market (Supply Demand Pricing)	693	200	129%
Nutritional Improvement			{300%}
Cropping Period			20%
Total production Benefits			131%
Benefits to the Community			
(1.) Soil health (2.) Farm family resiliency (3.) Farm income (4.) Community success			

Why the project

- To introduce new nature-based technologies which improve carbon sequestration, climate resilience and to increase the productivity of farms in Zambia through the introduction of Salvation Farming Solutions (SFS) methods.
- The SFS method consists of
  - (i) Soil and Fertilizer treatment;
  - (ii) Seed powder treatment;, and
  - (iii) Organic pesticide

SFS products

SFS fertilizer foliar, **soil and seed treatment** have been proven to improve yields and lower costs

- Demonstrated very significant ($p < 0.01$) **increased yield** per cropping season.
- Maize (corn) crops **mature faster**, enabling farmers to initiate more than one cropping season with improved price timing.
- **Decreases in fertilizer use** by up to 80%.
- Make Arid and Semi Arid Lands (ASAL) productive with less water dependency hence **increase in productivity**

Our soil treatment increases yield by rejuvenating soils

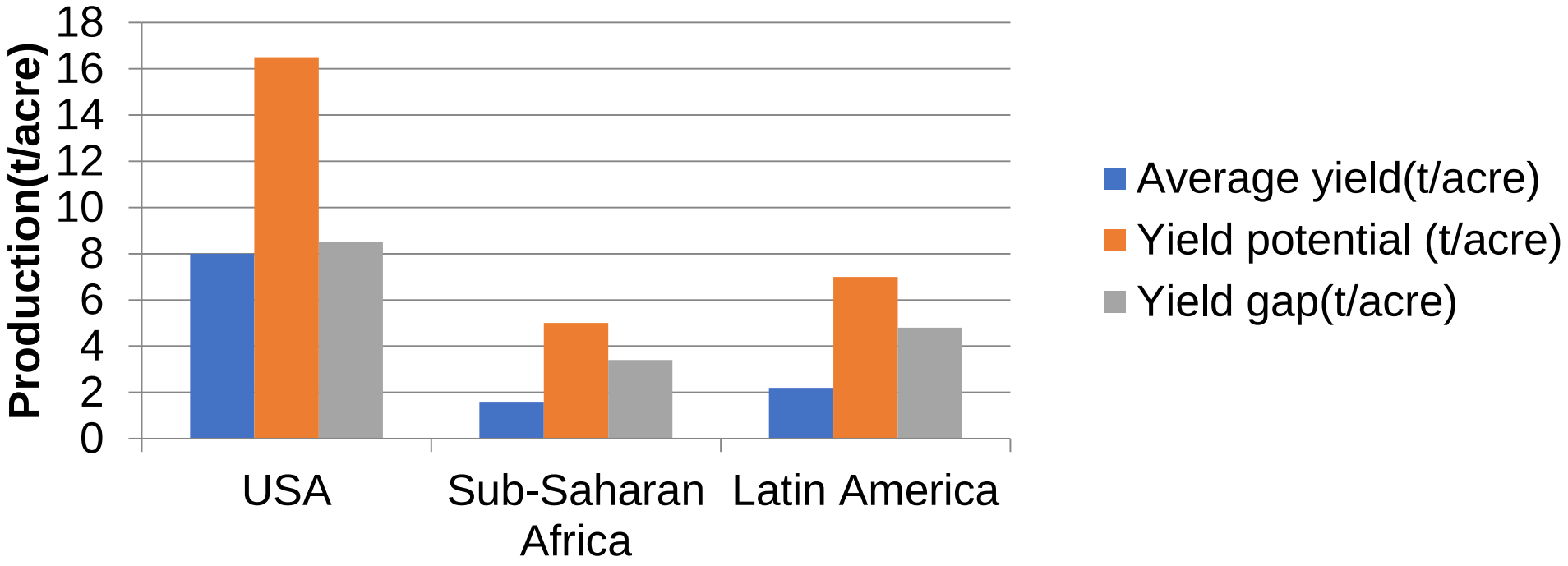
- Is supplied as a liquid concentrate that is mixed with water and sprayed on the field to be treated
- Is organic and it restores soil to a healthier condition for plants to thrive
- Less pollution
- Regenerative of soil conditions

-Soil treatment based upon the significant reduction in the use of lime provides a significant savings for farmers.

Our fertilizer foliar reduces the amount of fertilizer used

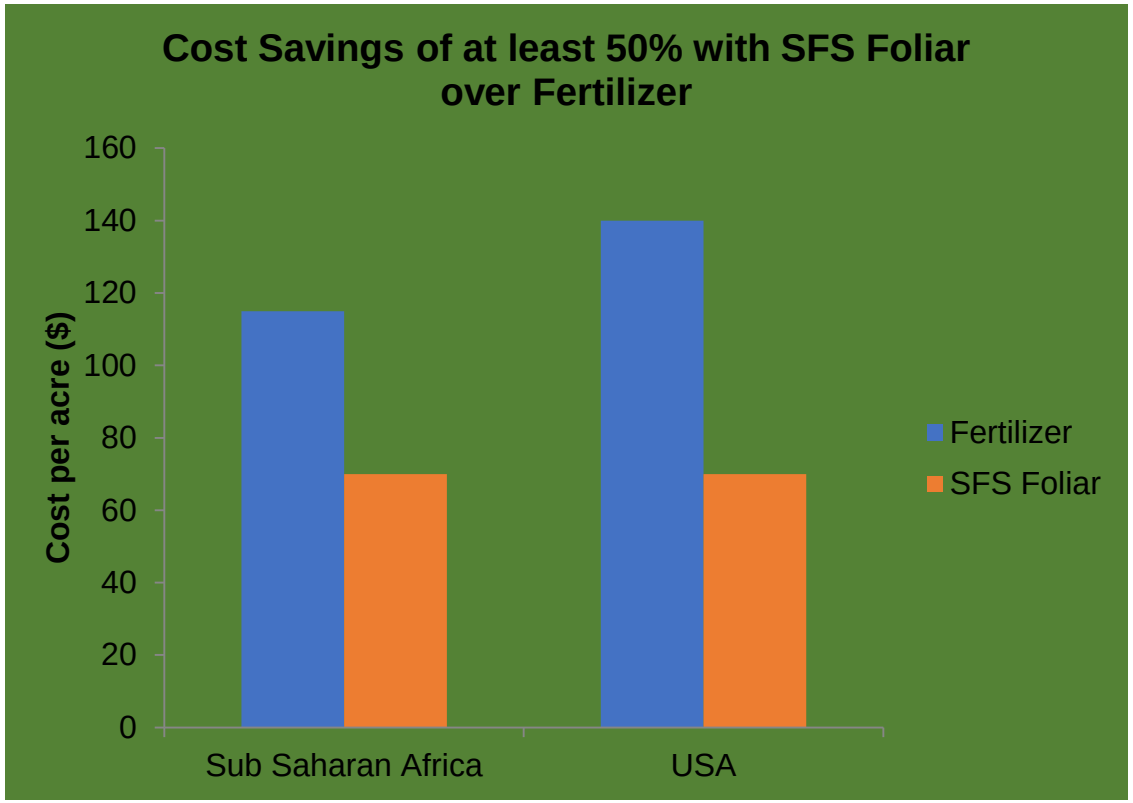
- Fertilizer Foliar will save farmers on fertilizer and labor costs
- The Fertilizer Foliar increases field productivity while significantly increasing bottom-line production.

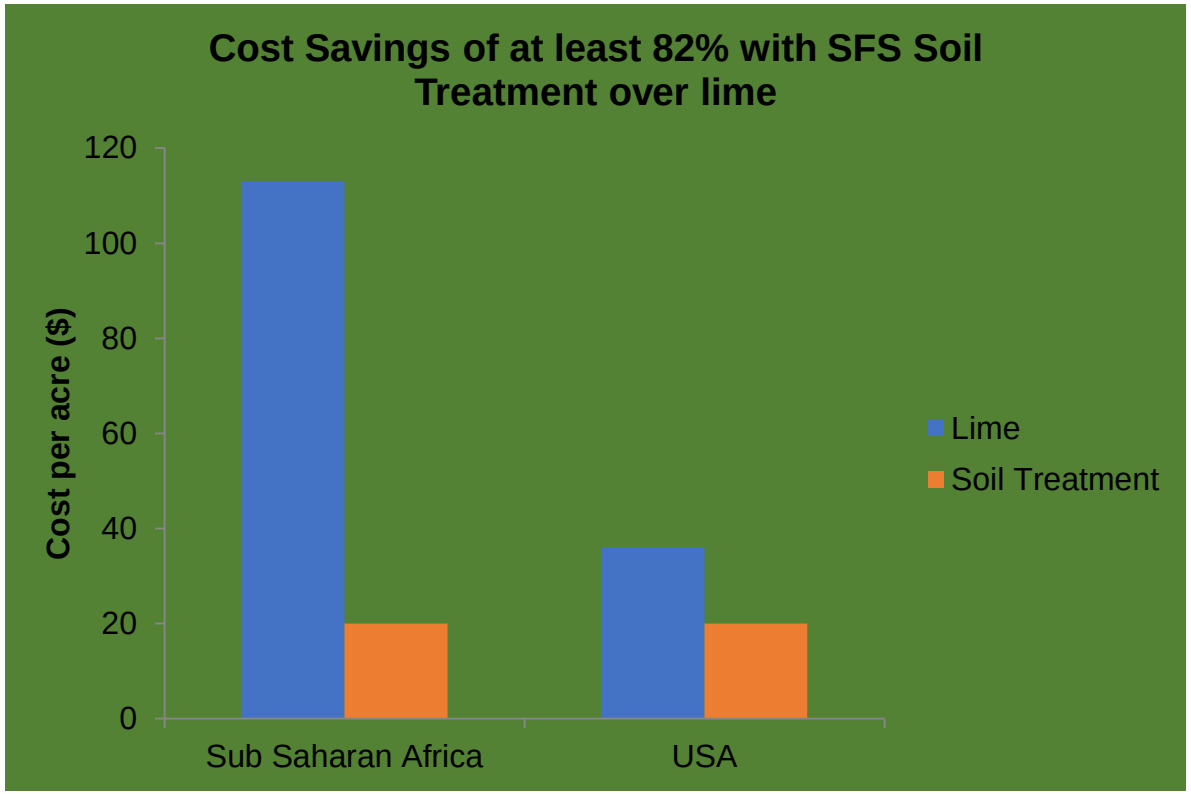
There's a yield gap of at least 69% for corn globally



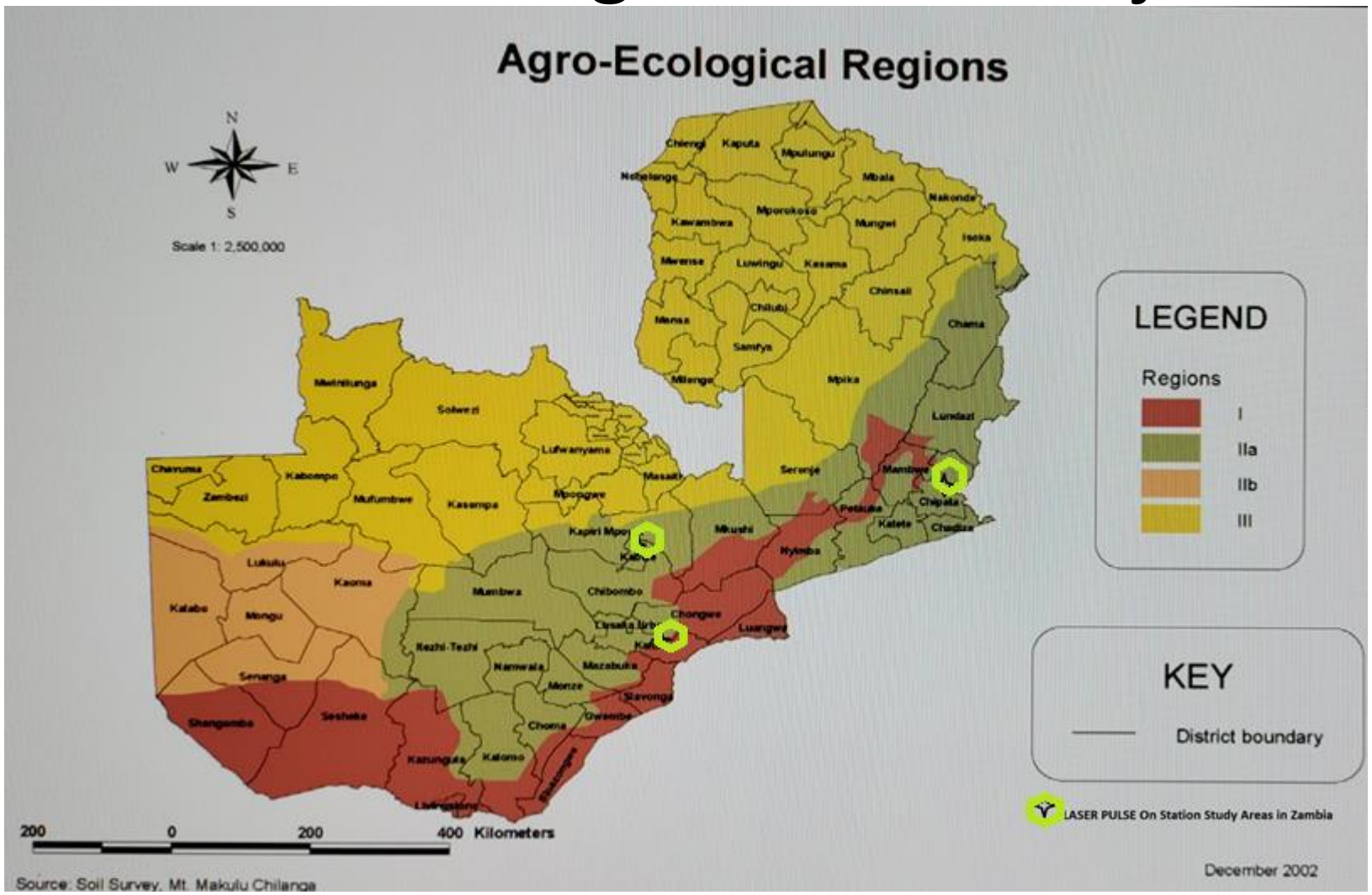
The yield gap is the difference between the potential yield and the actual production

SFS products offer significant cost savings for farmers





Salvation Farming Solutions Project Sites



The on station trials are being implemented in Zambia Agricultural Research Station in Mt. Makulu in Chilanga, Kabwe and Chipata

Results and Discussion based on the 6 weeks data after planting

- The soil treatment increases the plant volume by 20-30% compared to untreated soil.
- Seed treatment for the control group increases plant height approx. 15%.
- Control plots (no fertilizer) with soil treatment had larger plants than 20% of Full rate and Full rate Fertilizer.
- Less water use

Results and Discussion based on the 6 weeks data after planting

- Clear potential ability to get equal production as 100% fertilized without additional fertilizer use
- Significant fodder yield
- Germination data differences are not clear cut. It may be that seed soak could provide different data.
- There was some SPAD data variation, but not consistent enough for conclusive statements.
- In general there seems to be differences between treatments and that harvest yields will allow for conclusive understanding.

Strategic Partnership with development partners and Government in Zambia

- Doing some work with Catholic Relief Services in Chipata and open to further the collaboration beyond project phase
- AGRA-Zambia following the project progress will be open to partnership when country activities pick up during third quarter of the year
- Great working relationship with Government of Zambia through the Department of Agriculture in the ministry of Agriculture, Zambia Agricultural Research Institute and the Zambian Policy Monitoring and Research Centre

After the first pilots, we'll focus on distribution through a dealer network

Our direct sales will be focused on dealers, partners, distributors etc

Our marketing will develop awareness among farmers & farmer groups

Focus on organized farmer groups (e.g co-operatives, contract farmers) that bring economies of scale

NEXT STEPS

- After the proof of concept and pilot stages, we'll raise more funds as needed, for...

- Production
- Marketing
- Sales / Distribution
- Expansion of Operations

"By 2030, the size of the food and agribusiness in Africa will reach $1 Trillion. So, if you are thinking of how to make money, that's the sector to be in."

Dr. Akinwumi Adesina
President, African Development Bank

Thank You!

Tiberious Brian Etyang
etyang@salvationfarmingsolutions.com
www.salvationfarmingsolutions.com