



Center of Analytical & Agronomy Excellence



Climate Smart Soil Testing Technology for Improving and de-risking Smallholder Farming Systems



Farm Advisory Services

Lab Tests

Agtech Solutions

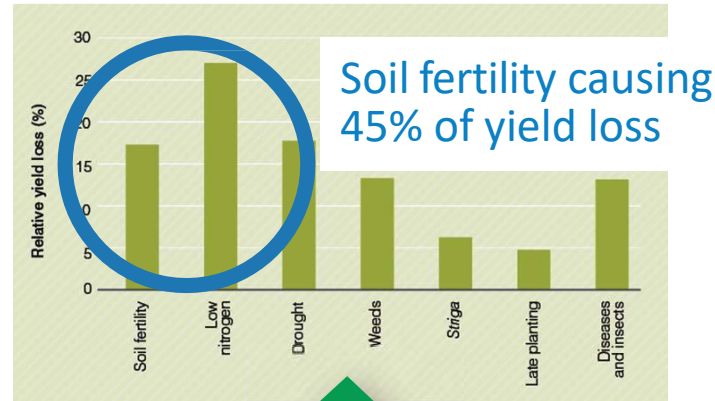




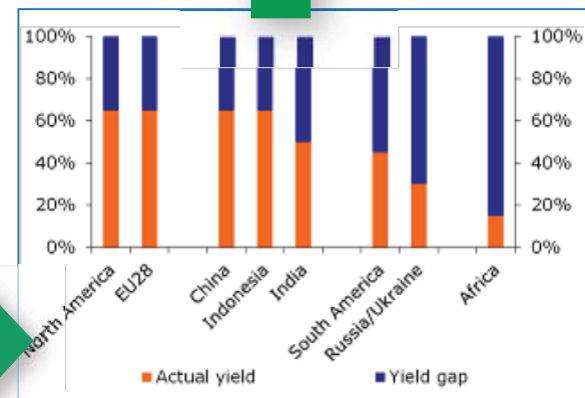
CROPNUTS HQ in Limuru - KENYA

Building resilient smallholder farming systems and Food Secure Africa

Relative yield losses from agronomic causes in maize crops in Sub-Saharan Africa. Source: based on Gibbon et al. (2007)



Yield Gap



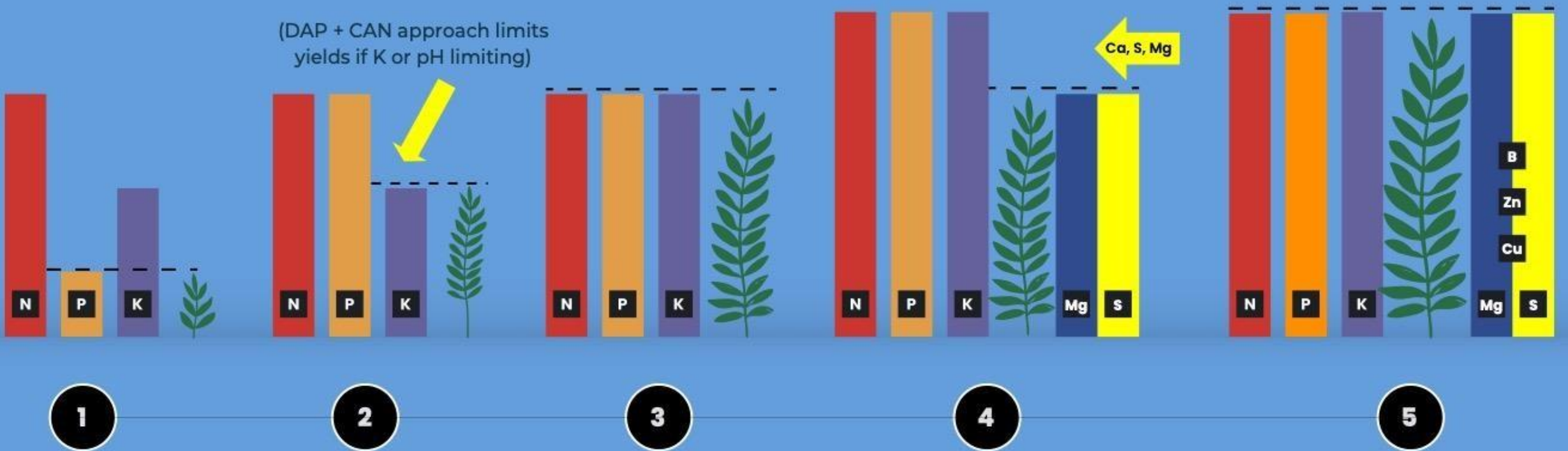
Source: FAOSTAT, 2015

Annual Nutrient Depletion

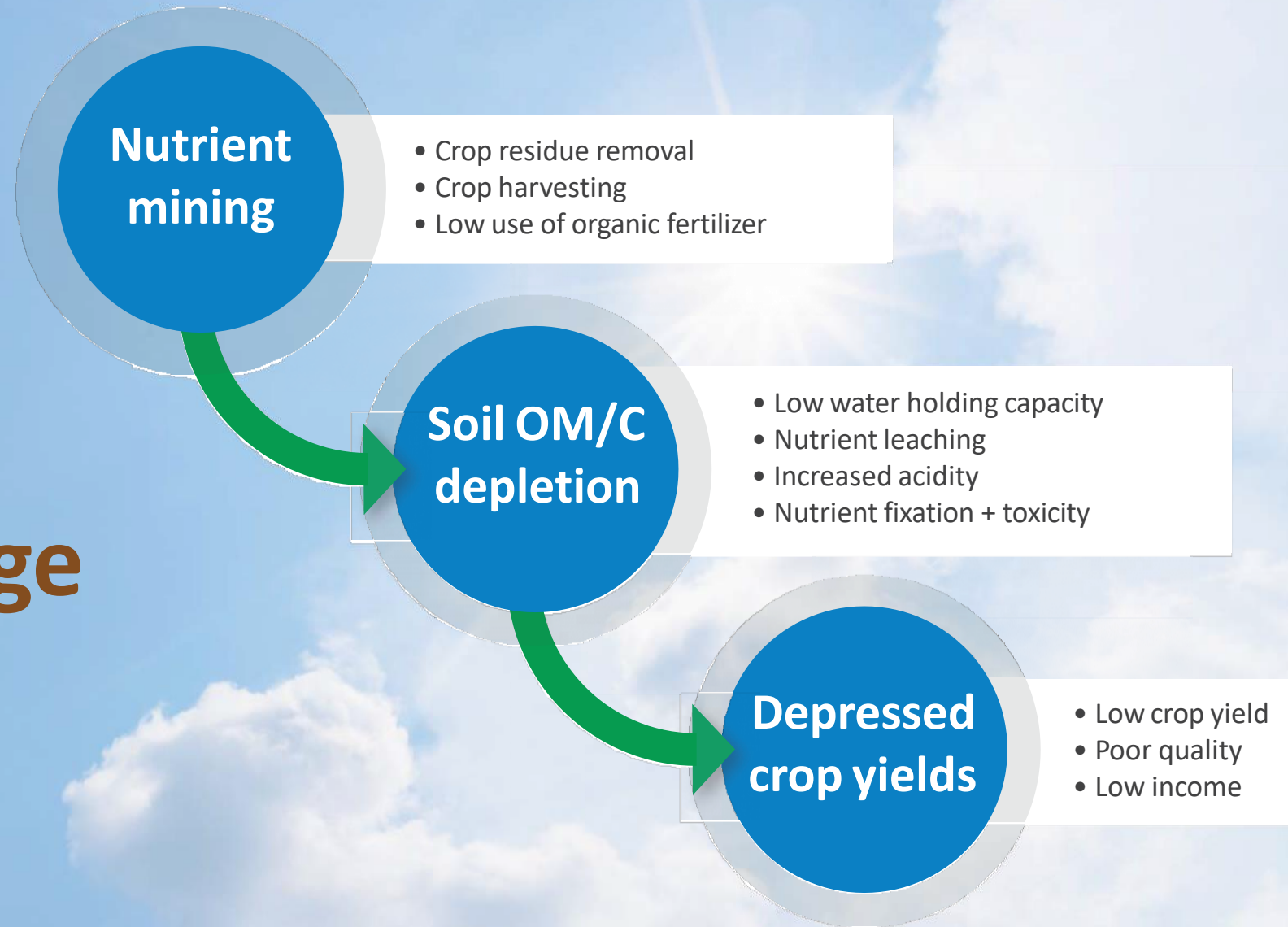


...requires quality soil information and soil management system based on regenerative agriculture principles.

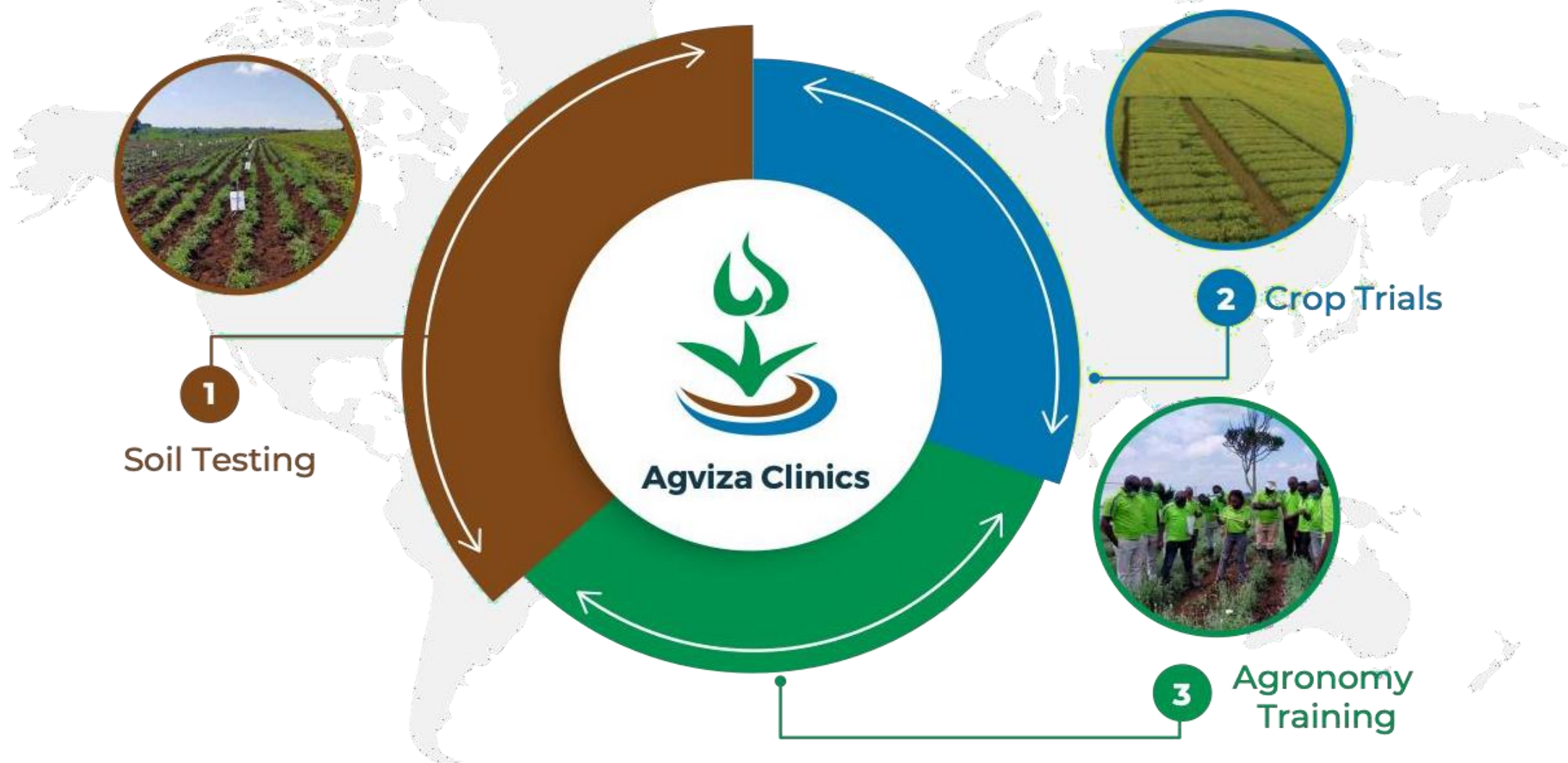
The Law of Minimum - balancing soil and fertilizer management for increasing yields



Why smallholder farming systems are vulnerable to climate change effects



AGVIZA Clinics - The future of Agricultural Extension



Soil and Crop Diagnostics

pH
P
K
Ca
Mg
Organic Carbon

Recommendations

SOIL TEST REPORT

Farmer Name: Abel Kibet
Location: Uasin Gishu/Turbo | Previous Crop: Maize
Phone: 054-5890738 | Next Crop: Maize

Lab Name: Nairobi Lab
Date Received: 14-Oct-2019
Analysis Date: 07-Nov-2019
Sampler: Michael Bakari

CROPNUTS
grow more, with less

Reason

Your Soil Fertility Summary

Available P, Exchangeable K, Calcium and Total Nitrogen are the major nutrients that are likely to be limiting your yields.
Boron and Copper are the micro-nutrients that are likely to be limiting your yields.
Low soil pH will reduce yield, apply lime

Fertilizer Recommendations (Yield target for: Maize 4 t/Ha)

Stage	Weather	Input	Kg/Ha	Bags/Ha (50kg Bags)	Comments
Pre-Planting		CALCITIC LIME	200	4	Apply agricultural lime after harvest and incorporate to depth, apply a maximum of 3 t/ha (agricultural + dolomitic) in one season, always check quality of lime before application.
Pre-Planting		DOLOMITIC LIME	600	12	Apply dolomitic lime 2 months before planting or after harvest - mix well into top 30 cm soil
Planting		18:22:21+5S+0.7Zn+0.5B	200	4	Apply at planting.
Top Dress		Urea	80	1.6	Apply 30 days after crop emergence

Disclaimer: These fertilizer recommendations are only valid for the sample presented, specific crop type, yield target and estimated fertilizer recovery. Please also note that the recommendations provide indicative rates only and should be validated at farm level through fertilizer trials. Whilst we have taken all reasonable care to ensure that our recommendations are accurate, we have not taken into account other factors that could greatly reduce crop nutrient uptake including but not limited to soil moisture, root diseases, nematodes, water logging, compaction, acidity, fertilizer placement and other management factors. Therefore, we accept no liability for any loss or damage arising directly or indirectly from the use of the fertilizers and under no circumstances whatsoever shall we be liable for any special, incidental or consequential damages which may arise therefrom. This document cannot be reproduced, without prior written approval of the company.

Powered by Cropnuts®

Compost for Soil health



Correct Lime rate
Calcitic/Dolomite



Correct Fertilizer



Maize, Rice, Potato & Coffee

Validation and research **crop trials**

Trials are also used for validation of the recommendations. Cropnuts has set up a network of field trials across Kenya that are used to validate the agronomic recommendations.

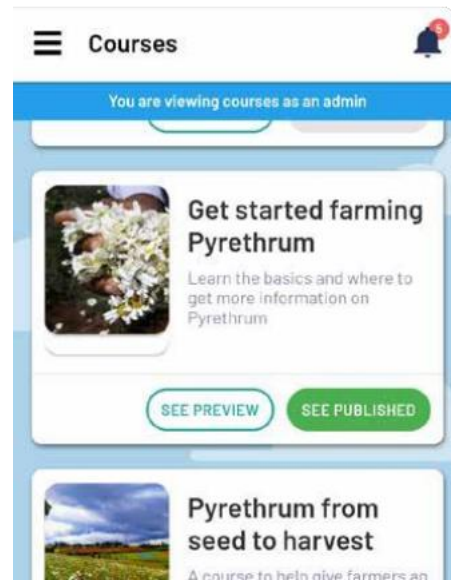


Data Driven Agronomy

- Crop Variety
- Planting Dates
- Fertilizer Rates
- Herbicide Programs
- Crop Protection Programs
- Crop Rotations

Partner **Agronomy Training**

- Soil sampling process
- Soil report interpretation and training
- Farm input application
- On site demonstration
- Modular agronomic training content



SMS Farmer awareness service

Step 1: Partner onboarding agent/ agronomist training

- identify and agree with partner & access mobile phone numbers of farmers (under NDA of course, but this should be a requisite to reduce our risk of free training and low soil testing uptake, we need to have some control on creating awareness)
- training partner extension agents in situ and ongoing with digital training platform (Farmink) and sample collection app (soil testing, soil sampling, understanding soil reports, implementation of advice)
- confirm all partners agronomists 'ready to sample'

Step 2: Farmer Awareness campaign

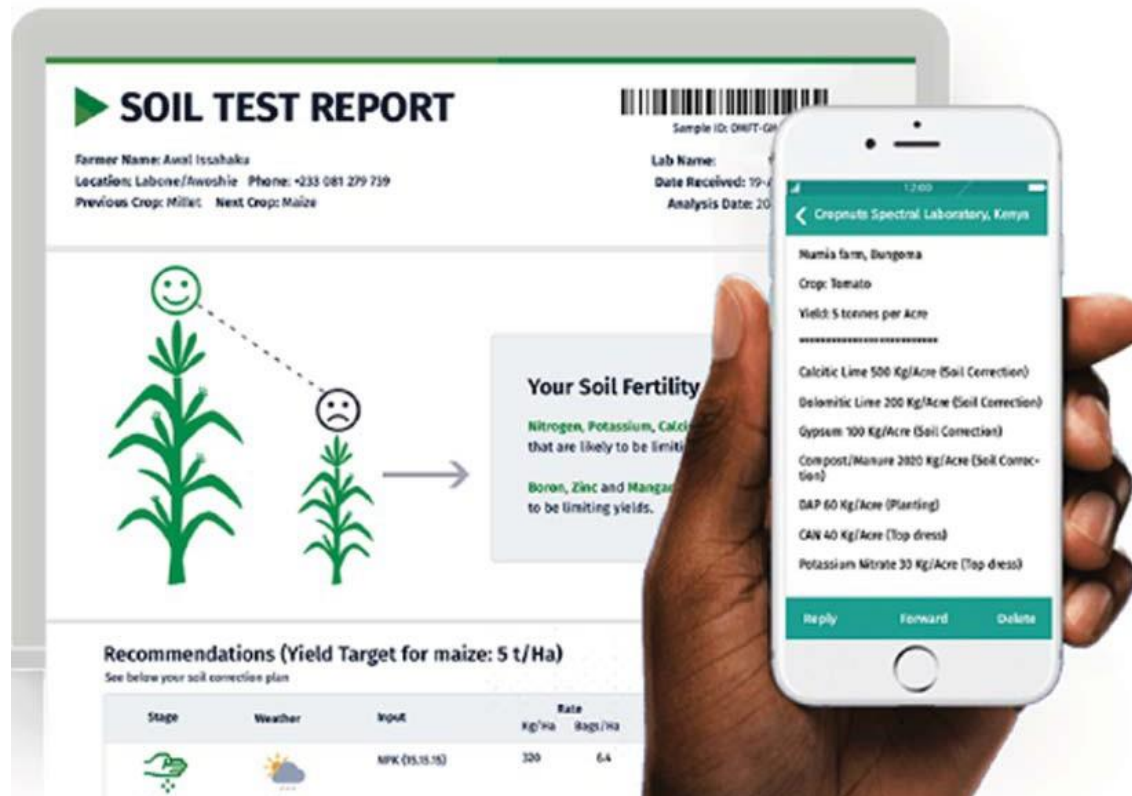
- send interactive "sales pitch" SMS (Climate Edge) branded as "partner name" to all farmer contacts registered in 1) - introducing partnership with Cropnuts Agviza soil testing service and creating farmer awareness/demand in soil testing
- interested farmers subscribe to soil testing process

Step 3: Sample Collection & Payment

- Once farmer subscribes, they are connected to local business partner agent (name and phone number, need to think how to link farmers to agents, i.e. which agent contact the farmers get)
- Agent visits farmer, take sample and logs in sample into Labpro (starts Climate Edge soil test SMS service)

Step 4: Sample sent to Lab and Activates current Climate Edge soil test SMS service

Automated soil test reporting and recommendations



SMS



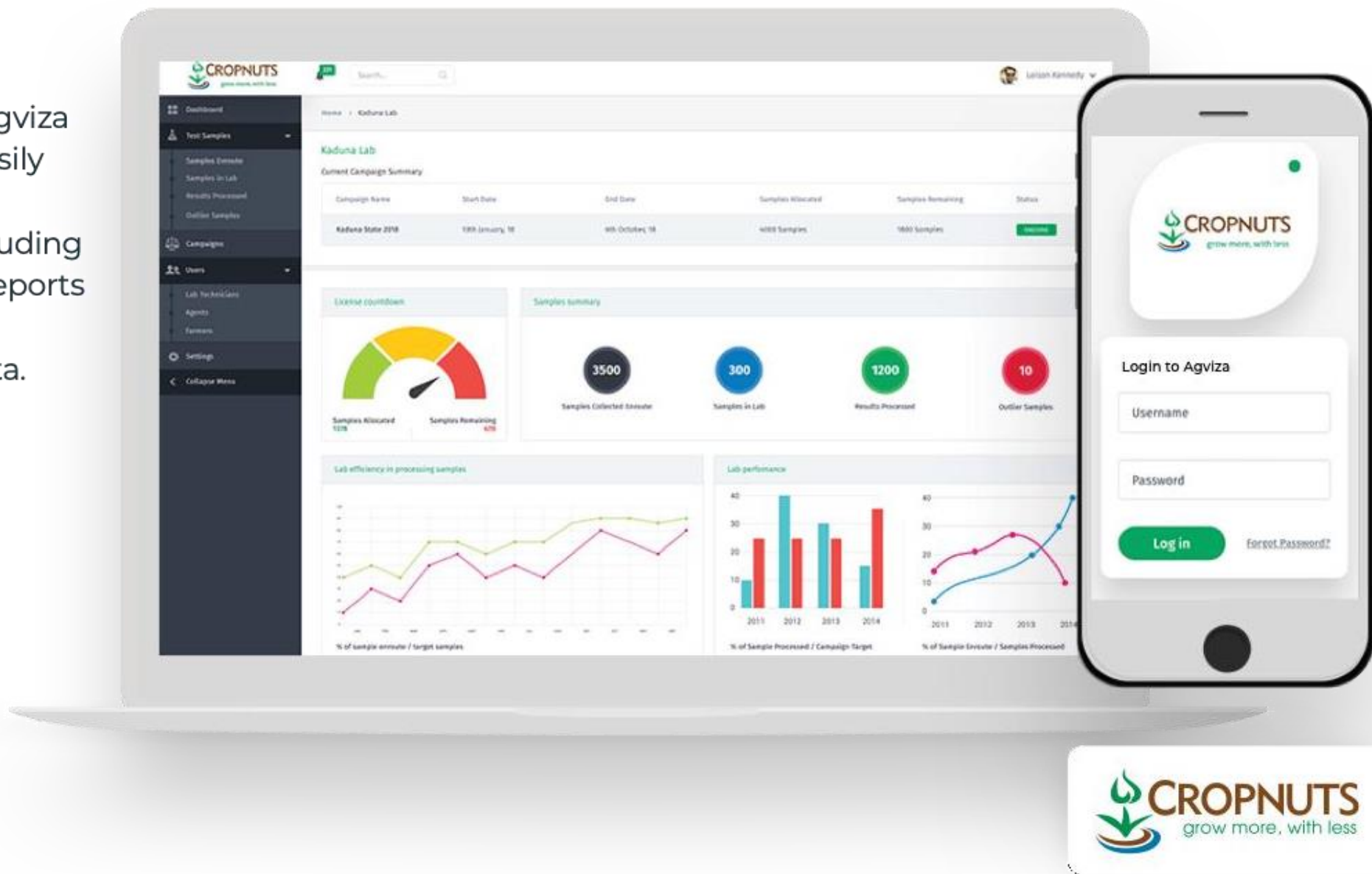
Whatsapp



E-mail

Client Portal

In the dedicated Cropnuts Agviza Partner Portal, clients can easily see the performance of each regional extension team including all soil testing and advisory reports produced including maps of sample locations and soil data.



Georeferenced farmer soil data showing soil carbon distribution **across farmers' fields**

- View your geo referenced farmers soil data as highly visual, color coded soil maps within your Agviza portal. These maps show how soil acidity and fertility levels vary across your farming region.

- By better understanding soil variations, lime and fertilizer inputs can be better selected, manufactured and distributed within smallholder value chains, resulting in more efficiency and high crop yields.

[View Kenya Soil Fertility Map 2020](#)



Thank you for
your attention



Farm Advisory Services
Lab Tests
Agtech Solutions



CROPNUTS
grow more, with less

Crop Nutrition Laboratory Services Ltd.
Limuru, off Limuru road, P.O. Box 66437
00800 Nairobi • KENYA
+254 711 094 444 • +254 720 639 933
support@cropnuts.com • www.cropnuts.com

