OUR WEBINAR WILL START SHORTLY ...
#MFW4AWEBINAR SERIES

OUTLINE

- HOUSEKEEPING
- MFW4A
- PANELISTS
- PRESENTATION
- Q&A
Today’s session is scheduled to last 1H15 min including Q&A

To ensure the highest quality of experience, all participants will be muted.

QUESTIONS can be submitted via the “Chat” or “Q&A”

For Live questions / Comments. Click on “Raise Hand” icon to speak (Lower Hand and mute after)

Slides and a recording of this presentation will be circulated after we conclude. They will also be available on MFW4A.ORG.

Message the organizers for any issues

Don’t forget to fill out the survey that appears automatically after the session
• G8 initiative launched in October 2007

• Common platform for the harmonization and facilitation of financial sector development and knowledge sharing in Africa.

• Donor partners, African governments the private sector, and other financial sector with the aim of unleashing the full potential of Africa's financial sector in order to drive economic development and reduce poverty across the continent.
MFW4A’s activities are broadly focused on three thematic pillars:

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<th>Financial Inclusion</th>
<th>Long-term Finance</th>
<th>Financial Stability and Governance</th>
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<td>• Digital Finance</td>
<td>• Institutional Investors</td>
<td>• Community of African Banking Supervisors</td>
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<td>• Agricultural Finance</td>
<td>• Housing Finance</td>
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<td>• SME Finance</td>
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<td>• Trade Finance</td>
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Knowledge Management and Advocacy
#MFW4AWEBINAR SERIES

OUR FUNDING MEMBERS

AFRICA DEVELOPMENT BANK GROUP
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Director
Insurance Products Agritask
Data Analysis, GIS and product design
About Agritask

• Ag-operations platform, software-as-a-service company
• Established in 2010, HQ in Israel with offices in Brazil and Bulgaria
• Interdisciplinary team with expertise in agronomy, remote sensing and GIS, and other technology
• Field-proven in 30+ countries (8 in Africa) and 50+ crops
• Clients include global F&B companies, farm inputs companies, crop insurers (including Nigeria and Mozambique) and other aggregators:

• Lead investor is InsuResilience Investment Fund, set up by Germany’s KfW Development Bank and managed by BlueOrchard, a global impact investment manager
Agritask: Local Impact with Global Footprint

Target geographies: LatAm, Europe, Africa, Asia

- Main markets
- Newly penetrated markets

- Offices
- Dedicated sales (based in offices)
- Distribution partners
- Dealmakers
Severe Climate Variability in Africa

Higher chance of drought

Projected change in temperature vs. pre-industrial (Celsius)

Higher average temperature

Climatic Hazards expect to Impair Crop Production in Africa

For all major staple crops – potential yield decline at 5 Celsius temperature change

Maize: -30%
Rice: -20%
Wheat: -60%
Soy: -150%

Significant Risk Protection Gap in African Agricultural Eco-System

% population covered by agricultural micro insurance (2014)

Crop Insurance in Africa: Problem & Opportunity

Growers

- Food Security
- Resilience & Livelihood
- Climate change
- Low financial inclusion
- Affordability of Insurance

Finance & Insurance

- Low penetration
- High costs
- Low risk visibility
- Inappropriate Products
- Technology
Precision Agriculture technologies & digital tools

**Onboarding**
- Build a picture of “Who grows what and where?”
- Mass registration of farmers

**Mobile tools for field operations**
- Digitize ongoing data collection such as:
  - Field inspections
  - Claim notifications
  - Loss assessment
  - Crop cutting experiments
- Manage field operations:
  - Task assignment for field inspectors

**Remote Sensing**
- Remote monitoring risk
- Automatically generate data from:
  - Satellite images
  - Weather stations
- Integrate with existing public database:
  - Soil taxonomy
  - Land use classification

**Integrative data platform**
- Aggregate regional view of plot-level data
- Visualize data on map with dynamic data layers
- Mass benchmarking

**Customized tools for each function**
- Specific modules for:
  - Onboarding
  - Underwriting
  - Policy management
  - Monitoring
  - Claim management and payout settlement

**Introduction**
**GIS**
**Use case 1**
**Use case 2**
**Use case 3**
**Summary**

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Agenda

Data Analysis, GIS and product design

• GIS capabilities: for data analysis and product design
• Use case 1: Plot and crop detection
• Use case 2: NDVI based AYII
• Use case 3: Inspection and path planning
• Summary, outlook & conclusions
• Q&A
Remote sensing
NDVI + Uniformity maps

Differentiate the zones of the map according to plant health indicators.
Used for collecting yield samples
Tree crop analysis
Use of high-resolution images

Allows calculation of parameters such as:
- % of planted area
- Planted area per line
- Estimation of plans per ha/sqm
Tree crop analysis
Use of high-resolution images

Introduction
GIS
Use case 1
Use case 2
Use case 3
Summary

Allows calculation of parameters such as:
• Individual tree counting (per plot or per line)
  • Distance between lines
  • Health – tree classification per crown size
Risk assessment - Flooding

Use of radar instead of optical data that ensures to estimate affected area even if cloudy
Risk assessment - Drought

Estimate affected area by comparing vegetation level before and after weather event.
Use case 1: Automatic plot boundaries definition

1. Verify quality of plots received from clients
2. Serve as base layer for rural cadastral survey
3. Serve as base layer for crop identification
4. Tool for mass registration of farmers

Random identification of plots using Sentinel 2 – 85.36 % of accuracy
Use case 1: Crop detection

Existing data set - crops information → Retrieval of imagery collection

→ training the ‘pixel’ information - ML

→ Imagery classification

→ parcels with predicted crop

→ accuracy crosscheck

→ prediction of crops, statistics per region, area, % of crop dominance
Use case 2: NDVI based Area Yield Index (AYI)

1. **Onboarding of farmers**: location and plot boundaries identification

2. **Risk Clusterization**: enable profiling of farmers

3. **NDVI monitoring and yield potential**: define sampling groups that statistical represent farmers

4. **Planning crop cutting experiment**: methodical process to choose farmers to be sampled

5. **Field inspections**: digitalized inspections to reduce processing time and ensure best practices

6. **Yield index per cluster**: calculation considering farmers risk classification
Risk Clusterization

Risk based clusterization: based on historical weather data, cultural parameters, agriculture aptitude, etc. Allows operate micro insurance and analyze risk in a scalable way
Productive potential ( % and classification): high risk and low yield potential are indicators of areas which could have claims
Use case 3: Activity planning tool for inspections

**Identify fields with damage**

Plan inspections to damaged plots and define inspection paths that will allow to take representative samples.

**Scouts**

Scouts receive tasks on their mobile and see path on the map, where they perform and report requested activity/info.

**Inspection Control**

Reduce moral hazard, save costs and reduce errors.
Smallholder crop insurance can scale up massively only through technological advancements. Satellite technology and GIS tool assist conduct the following remotely:

- Plot detection
- Crop identification
- Area calculation
- In-season (portfolio) risk monitoring
- Planting date estimates
- Yield estimates
- Remote Risk analytics and pricing
- Geographical risk-based clusterization
Conclusions

- Higher quality product design - e.g. NDVI AYII

- Risk monitoring - remote access to field information in real-time

- Lower costs on Indemnity products - less redundant inspections

- Affordability of Insurance – higher precisión in pricing

- Scalablity in smallholder onboarding
(Lucrative) Vision

- Smallholders and mobile phone penetration: self-service?
  Onboarding, field transparency and settlement.

- Commoditization of satellite images: is it going to be free in 10 years from now? Are smallholders going to be users?

- Product personalization: Insurance is turning customer centric. Why cannot your agro-plot be insured through a tailor made solution?
Thank You

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Agritask
Send us your questions using the chat and / or Q & A features.

If you want to ask your question directly, please click on the “Raise Hand” button or send a message to the organizers.
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