Modelling Agricultural Big Data for financial Inclusion for farmers in Ghana

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FARMERLINE
The future of agriculture lies with smallholder farmers.

Yet, access to finance is key to increasing farmer productivity and access to farm inputs.

They disproportionately lack access to financial services, due to limited credit or repayment data, remote locations, and widespread perceptions of agricultural lending as volatile and risky. (IFC, 2014)
Our mission is to transform millions of smallholder farmers into successful entrepreneurs by connecting them to markets, information, and services.
WHAT FARMERLINE OFFERS

COMMUNICATION
simple, user-friendly voice and SMS messaging for farmers

DATA COLLECTION
our tech digitizes: farmer profiling, farm mapping + mgmt, certification, traceability

TRAINING + NETWORK
we provide farmer and client training, and support distribution of livelihood products + services
In 2016, Farmerline partnered with Bankable Frontier Associates (BFA), Kiva, and MasterCard Foundation to provide microloans to cocoa farmers working with licensed buying companies.

Leveraging on PAYTIME, a mobile lending and credit scoring application and in-country farmer network, a pre-pilot of loan was disbursed to 101 farmers.
WHAT IS PAYTIME?

○ A payment platform that allows for transfers of money to/from rural customers
○ A platform enabling financially excluded rural customer to access banking services/products
○ An alternative credit scoring platform for the unbanked
Lean Startup methodology

1. Describe Hypothesis
2. Identify Assumptions
3. Identify Biggest Risks
4. Plan a Test
5. Build Something Simple
6. Test Assumptions
7. Analyze & Rethink
Research
Design Sprint

Lean Experiments
1. State Hypothesis
   - PK customer
     • Problem
     • Solution
2. Define Assumptions
   - PK lack capital
   - Farmers need funding
   - PK lends to farmers
3. Select Riskiest Assumption
   - PK lends to farmers
4. Design Experiment
   - Validate
     • PKs will invest money in PPs
   - Validate
5. Learnings
   - What
   - When
   - Where
   - Why
   - Who
Build app

Is everything correct?

**Full Name**
Kwaku Mantey

**Telephone**
0200000001

**Gender**
Male

**Location**
Kumasi

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**Paytime Loans**

**Kwaku Mantey**
Tel: 0200000001

**Date of last payment:** No payments made

**Amount borrowed:** GHS 500.0

**Interest:** GHS 60.0

**Amount paid:** GHS 0.0

**Amount left:** GHS 560.0

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**Record payment**

**See loan details**

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**Farmers with loan requests**

- **Kwaku Mantey**
  - Approved
- **Kwame Anim**
  - Declined
- **Yaa Mansa**
  - Pending
- **Uchitha Itachi**
  - Amount owed: GHS 80.0

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**Add a farmer**
KEY RESULTS

- 68% first-time borrowers
- More than one-third of borrowers were women
- 30% farmers aged 40 or under; 20% 35 or under
- 79% recovery
- 90% projected recovery after two-month extension; 98% projected total recovery
- Most loans paid for farmer inputs or school fees.
- Improved farmer-agent loyalty
- Average loan was GHS 411 ($100). Ranges between GHS 250 ($60) and GHS 1600 ($375).

Projected Total Repayment
- Received GHS 37,708 (79%)
- Expected GHS 7,798 (19%)
- Default GHS 831 (2%)
What worked well

- PAYTIME lending app was effective
- Field agents key link to creditworthy farmers
- Training improved data quality
- User research
- Weekly monitoring improved on-time repayment.

Grace Boatemaa, a cocoa farmer from the Ashanti region, used her 500GHS loan to pay her daughter’s school fees.
Proposed Changes

- Incentivize collection through commission for field agents
- More support for field agents
- Season based loan packages
- Input credit and/or cash combination
Expansion strategy

- Improve and expand agent network
- Work with newly hired agents to recruit potential borrowers from within their existing farmer network
- Identify new partnerships with financial institutions to scale in Ghana and new markets
Thank you

Please contact us with any questions

farmerline.co // @farmerline