

# The New Agricultural Lenders In Developing Countries: How AgTechs are providing Financial Solutions in Agriculture

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## Motivation

- ❖ Global agriculture will need to increase food production by 70% to sustainably feed a 9.1 billion estimated world population by 2050 (Food and Agriculture Organization FAO, 2009).
- ❖ The World Bank estimated that global agriculture needs to add the minimum of \$80 billion in annual investments to meet this increase in demand for food.
- ❖ Traditionally, technological innovations in agriculture focused mostly at improving production efficiencies (e.g., improved genetics, more effective fertilizer). While production-related innovations continue offering marginal efficiencies, new innovative approaches to extending access to capital for farmers seem to be another potential area of efficiency gains and productivity growth.
- ❖ Agricultural Technology (AgTech) companies took a lead in addressing the “credit gap” issue in agriculture by utilizing financial technologies (FinTech) and data analytics.
- ❖ This study looks at the contribution of AgTech companies in solving these challenges with emphasis on agricultural lending.

## Background

- ❖ AgTech firms are businesses which apply cutting-edge technology to farming, food production and overall agricultural value chain to provide solutions to existing and emerging challenges by improving efficiency and productivity in agriculture.
- ❖ Being a relatively new economic sector, AgTech firms in the last decade has shown a potential to transform global agriculture and boost productivity while lowering the environmental and social costs of current agricultural practices (Dutia, 2014).
- ❖ AgFunder (2020) classifies scope of AgTech products into eight categories based on the sector of agriculture they focus on and the kind of technological solutions they provide (see Figure 1).
- ❖ Until recently, the majority of the innovations in agriculture were focused on production efficiencies. Recently, AgTech companies started using data from existing technologies to help farmers to make more informed decision-making to increase not only production efficiency, but also improve access to credit, and to compile credit information on farmers.

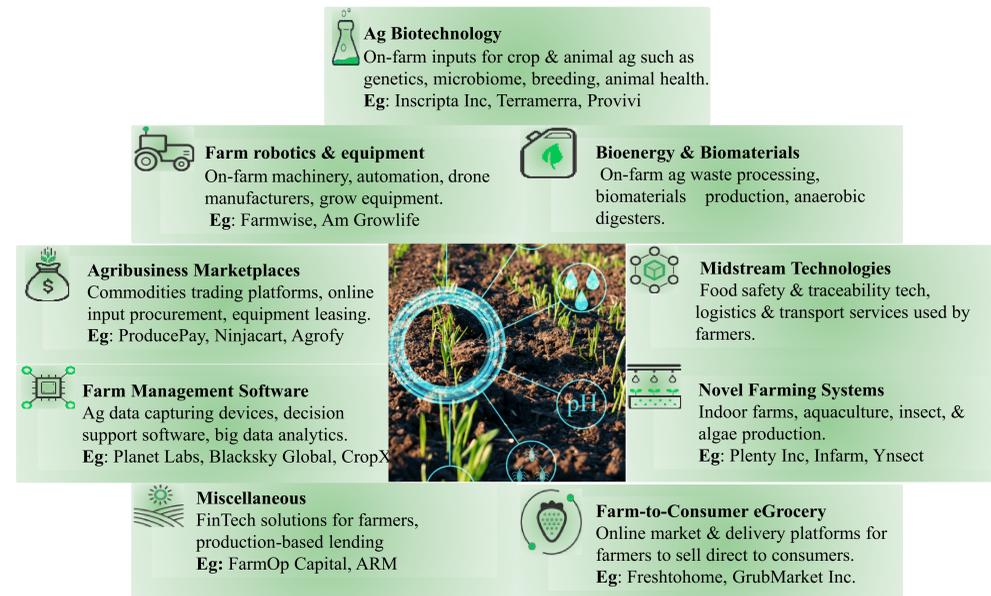
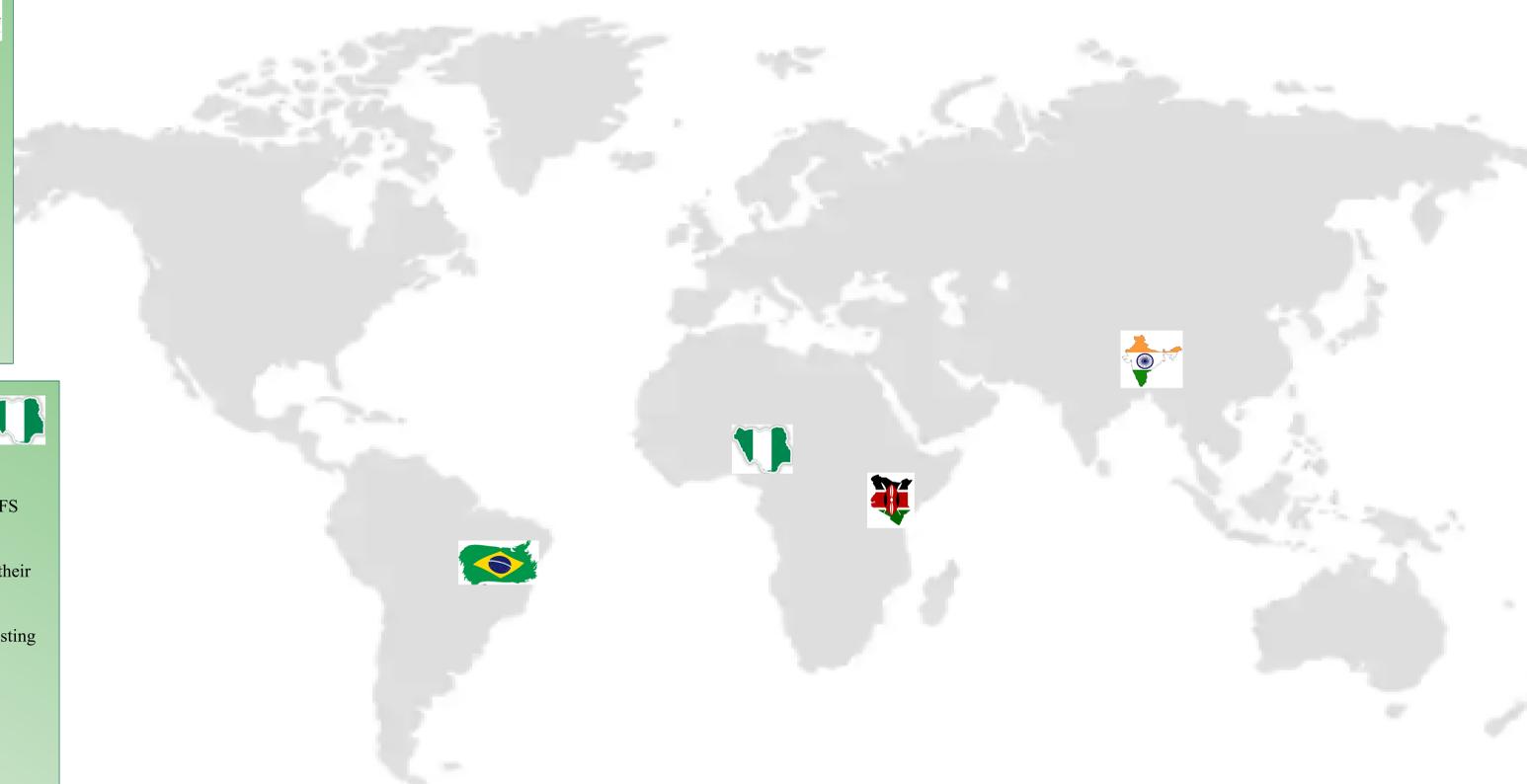


Figure 1. Classification of AgTech Companies, AgFunder (2020).

## Findings



### TerraMagna – BRAZIL

Established 2017

Solutions Offered

- Builds credit profiles for small-scale farmers and sells them to other lenders.
- Provides short-term loans to small-scale producers (6-12 months).
- Helps lenders track farmers' collateral used in loan acquisition.

Business Model

- Uses satellite imaging technology and various data analytics systems to provide credit information about farmers to lenders.
- Operates a Business to Business (BBC) model where they serve as a funding partner for input suppliers who then extend credit to farmers.

Major Funding Sources

- ONEVC, MAYA Capital, Accion Venture Lab, Canary, The Yield Lab

Financing program

- Provides short-term/operating loans directly to agricultural producers.
- Function as a funding partner for input suppliers.

### FarmCrowdy – NIGERIA

Established 2016

Business Solutions Offered

Offers an ecosystem of services including

- FS Structured Finance, FS Aggregation, FS Foods, FS Technology and Data, FS Insurance, FS Marketing.

Business model

- Fills existing information and access gaps throughout the supply chain using their peer-to-peer networking system.
- Uses contractual arrangements with farmers to grow specific commodities.
- Offers a platform for individual investors to select the farm that fits their investing goals/needs.

Major Funding sources

- GSMA Ecosystem Accelerator, Ajayi Solutions.

Financing program

- Does not offer direct loans to farmers.
- Facilitates the capital/credit flow from investors to producers..

## Problem Statement

- ❖ While the credit gap issue is relevant for some group of agricultural producers in developed countries, the issue of no adequate access to capital affects majority of smallholder farmers in developing countries since formal and informal financial institutions in developing countries currently meet only 25% of the overall demand for ag credit (Goldman *et al*, 2015).
- ❖ The lack of credit history and no/very limited access to a physical bank location are some of the obstacles preventing traditional lenders to serve smallholder farmers in developing countries. In the last eight years, multiple AgTechs firms started developing business solutions to address the credit gap in those regions by combining their data gathering and analytics capabilities as well as financial technologies.
- ❖ Due to the confidential/proprietary nature of these firms and their products, as well as a limited regulation, there is currently very little publicly available data/information on how AgTechs address the credit gap which has not been discussed collectively in the agribusiness/finance research fields. Therefore, there is a need to better understand current lending landscape in developing countries and their unique strategies to put capital into farmers' hands.

## Objectives

- (1) To gather and conduct a comprehensive review of the existing information about these firms and their product offering
- (2) To identify key characteristics and specific business models they employ
- (3) To draw similarities and differences between these firms and the strategies they employ to serve this group of farmers.

## Methodology

- ❖ A comprehensive literature review was conducted to gather the existing information/data on this topic from companies' websites, technology and innovation blogs/hubs, new releases, etc.
- ❖ Four AgTechs in three different regions of the world were identified and studied.

### RML AgTech – INDIA

Established 2007

Business Solutions Offered

They have developed a mobile app which they use to;

- Provide agronomic advice and decision support for farmers.
- Offer a digital/online marketplace platform for farmers to sell their products and also purchase inputs from suppliers.
- Connect farmers with credit providers and vendor financiers.

Business model

- Owns a platform (myRML App) which connects multiple supply chain members, including lenders.

Major funding sources

- IvyCap Ventures (Vendor Capital fund) with total funding amount of \$6.9 million.

Financing program

- Does not directly extend credit to farmers.
- Facilitates the flow of credit by connecting farmers (borrowers) and credit providers.

### Apollo Agriculture – KENYA

Established 2015

Business Solutions Offered

- Uses its data gather and analytics capabilities to build credit profiles for small-scale farmers in Kenya.
- Provides crop insurance services as a risk mitigating tool.
- Selling high quality farm inputs on credit.

Business model

- Uses data obtained from satellite imagery and remote sensing, together with machine learning models to build credit profiles which then it sells to input dealers.
- Serves as a funding partner for input dealers.

Major Funding sources

- FMO (Dutch Entrepreneurial Development Bank Rabobank Foundation).

Financing program

- Partners with input dealers to sell on credit to farmers.

## Conclusions

- ❖ AgTech companies have taken a lead in developing innovative solutions to financing challenges smallholder farmers face in developing countries.
- ❖ This study focuses on four unique AgTech firms which are attempting to close the credit gap in India, Kenya, Nigeria and Brazil.
- ❖ While all the firms covered in this research work toward the same end goal (close the credit gap for farmers in developing countries), they all utilize different business models. Some focus only on facilitating the flow of credit/connecting borrowers and credit providers (e.g., RML AgTech/India), while others offer more sophisticated business solutions ranging from compilation of credit profiles for farmers (TerraMagna/Brazil and Apollo Agriculture/Kenya) to extending short-term loans directly to farmers (TerraMagna/Brazil and Apollo Agriculture/Kenya) or indirectly by serving as a funding partner for input suppliers (Apollo Agriculture/Kenya and TerraMagna/Brazil).
- ❖ Based on the information reviewed, it is likely some AgTech firms engage in coordinating input purchase transactions for farmers.

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