

Dalberg
Advisors



Landscape of the AgTech ecosystem for Smallholder Farmers in Colombia

PUBLIC REPORT
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Context and Introduction

- In early 2023, Dalberg supported Rabo Foundation to develop a high-level profile of smallholder farmers (SHF) and map the landscape of AgTech solutions in Mexico and Colombia relevant to SHF.
- This work assessed the enabling environment for AgTech solutions (including regulatory support, start-up ecosystem, midstream infrastructure, etc.)
- The output of this document is public in an effort to benefit the ecosystem

AgTechs¹ can be classified into five categories based on their technologies and benefits for agricultural stakeholders

OVERVIEW OF AGTECH CATEGORIES

NON EXHAUSTIVE

	Definition	Potential impact on SHF business models	SHF challenges addressed by solutions within categories
 Advisory and Information Services	Solutions that incorporate on-site data, precision agriculture technology, and external information systems to enhance farming processes, increase productivity, and improve decision-making	<ul style="list-style-type: none"> ✓ Increase crop yield ✓ Optimize production costs ✓ Improve planning and farm management 	<ul style="list-style-type: none"> ✓ Limited information on certifications and access to technical assistance ✓ Inadequate record keeping/data collection
 Market Linkages	Solutions that broaden the farmer's access to input markets (fertilizers, supplies, machinery, labor, and technical knowledge) and off-take markets (B2B, B2C, and global trade)	<ul style="list-style-type: none"> ✓ Competitive prices for inputs and produce ✓ Higher production quality ✓ Decrease suppliers/buyers switching costs 	<ul style="list-style-type: none"> ✓ Information asymmetries on inputs' prices ✓ Information on market prices ✓ Excessive intermediaries
 Supply Chain Management	Solutions that improve competitiveness of the farming operation by optimizing information flows, minimizing process inefficiencies, and increasing transparency, traceability and accountability	<ul style="list-style-type: none"> ✓ Increase farmer's bargaining power ✓ Reduction of produce losses ✓ Stronger commercial relationships 	<ul style="list-style-type: none"> ✓ Lack of productive, storage & transport infrastructure
 Financial Access	Solutions that grant and deepens the access to financial and capital markets, aiming to assure the growth and long-term sustainability of the farming operation	<ul style="list-style-type: none"> ✓ Secures farmer's financial sustainability ✓ Improve risk mitigation capacity ✓ Broadens scaling opportunities 	<ul style="list-style-type: none"> ✓ Limited access to working capital ✓ Inadequate financial products ✓ Lack of land titles
 Macro Agricultural Intelligence	Solutions that integrate diverse individual data sources across the value chain and aggregates them into articulated data pools for analysis at a sectorial, regional and country wide level	<ul style="list-style-type: none"> ✓ Improved market knowledge ✓ Enriches policy and sector regulation ✓ Strengthens climate risk assessments 	<ul style="list-style-type: none"> ✓ Climate change (e.g., extreme weather events) & environmental issues (e.g., soil degradation)

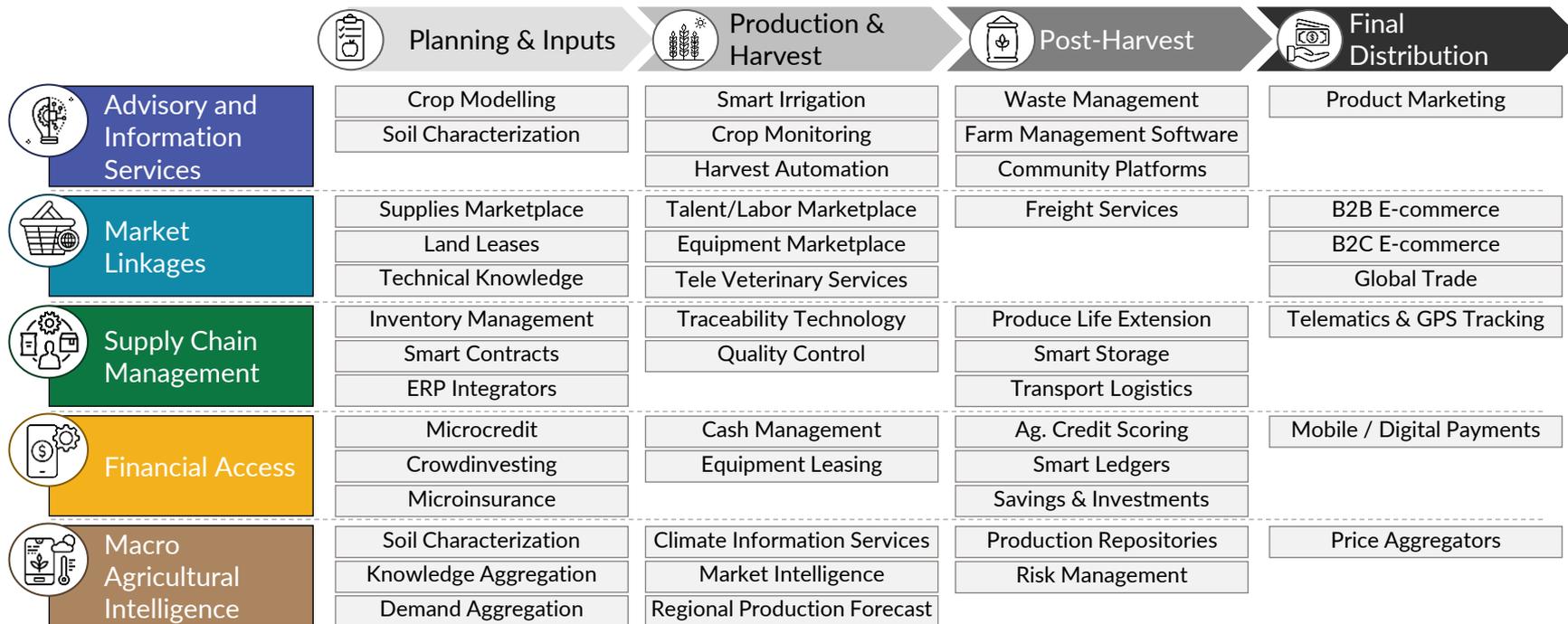
Source: ¹CTA, The Digitalization of African Agriculture Report 2018-2019.

Notes: We consider AgTechs to be solutions that will directly be used and benefit producers. We exclude companies considered to be Biotech, Foodtech and Fintech, although we do include Ag Fintech companies, that is FinTech with a primary focus on Agriculture. For the specific definition please refer to the Annex.

Within each category there are various type of solutions that address specific activities across the agriculture value chain

AGTECH SOLUTIONS ACROSS THE VALUE CHAIN

NON EXHAUSTIVE



Source: Dalberg Research; Stakeholder Interviews.

AgTechs have varied business models, generating revenue from external funding, service fees, or "impact" sales to third parties

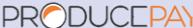
IDENTIFIED AGTECH BUSINESS MODELS – NON-FINANCIAL SOLUTIONS

	Business Model	Description*	Revenue Streams**	Examples
1	Free / Subsidized or Externally Funded	AgTech provides a service the producer at zero cost, either because i) data monetization or advertisement are possible or ii) the cost is assumed by a third party (e.g., government, NGO). This models includes Non-Profits	+ Data Monetization + Advertisement + Third party financing	 (Non-profit that channels external funding to the development of SHF Ag. Projects)
2	Freemium	AgTech provides a service of limited functionality at zero costs and charges the producer for additional functionalities or hardware built for the service platform.	+ Add-Ons + Device/Hardware + Data /Ads.	 (Climate Intelligence software with build-on functionalities)
3	Subscription Based	AgTech provides a service that is only accessible through a subscription/license payment paid directly by producers	+ Subscription fees	 (Software platform for irrigation management)
4	Marketplace / E-Commerce	AgTech provides a platform that links farmers, buyers (B2B or B2C) , and other value chain actors within a single trading platform and generates revenue through membership or other fees paid by consumers (i.e., off-takers)	+ Selling Fees + Membership access + Commercial margins + Credit alternatives	 (B2B E-commerce platform for agriculture products)
5	Performance based funding	AgTech provides a service to farmers that assure a social/environmental impact gain, which is rewarded financially by a third party (e.g., large companies, non-profits or others)	+ Outcome-based funding + Carbon Credits	 (Waste management solutions that comply with climate compensation needs of third parties)

Note: *There is limited information available on cooperatives being direct AgTech clients **Go-to-market strategies are listed on page 108. There are cases where farmers pay for service directly (e.g., Kilimo and Sistema.bio). There is greater level of detail on the business models in the profiles developed for 10 selected AgTechs (see annex)
Source: Dalberg Research; Stakeholder Interviews.

AgTechs that offer financial services generate revenue through interest payments and/or access fees to finance platforms

IDENTIFIED AGTECH BUSINESS MODELS – FINANCIAL SOLUTIONS

	Business Model	Description	Revenue Streams	Examples
1	Platform to Farmer Lending	Platform that directly provides loans to farmers under defined and agreed conditions. Loans can be for specific (working capital, production inputs, etc.) or for general use, interest revenue is paid by producers	+ Interest revenue + Administrative fees	 (Credit and factoring solutions for producers)
2	Partnership with established FIs	Platform that delivers financial products to producers of a formal financial institution through an established partnership, interest revenue is paid by producers	+ Interest revenue + Commission by finance partner	 (Platform that offers financing for agri-business inputs)
3	Crowdfunding	Platforms that enable financing solutions for farmers through the pooling of multiples investors, revenue streams are paid for a combination of producers, cooperatives and third parties (e.g., large firms)	+ Administrative fees + % of production revenue + Advisory services for farmers	 AGRAPP (Platform that connects investors with agriculture production projects)

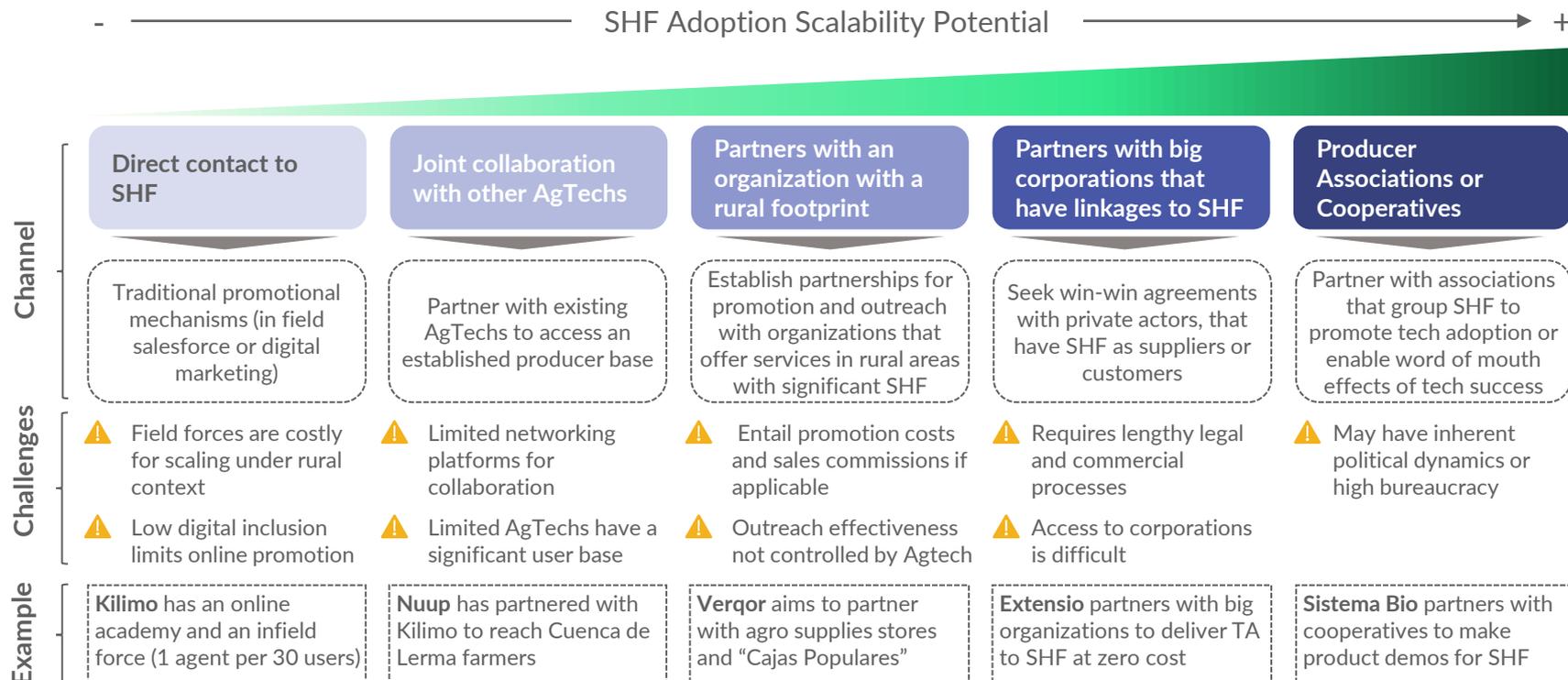
Business models trends

- Most AgTechs integrate multiple business models into their product offering (e.g., embedding credit access within a marketplace platform)
- Most models are subscription based, license or membership, with add-ons like services, hardware, additional functionality
- Business models that integrate financial solutions to existing platforms (like Verqor or Frubana); it can be common in marketplaces/e-commerce firms
- Business models that integrate climate compensation revenue, such as Sistema.bio or Kilimo

Source: Dalberg Research; Stakeholder Interviews.

Partnering with organizations that have established relationships with SHF can be an effective scaling strategy

AGTECHS ACQUISITION CHANNELS AND GO-TO MARKET STRATEGIES FOR SHF OUTREACH



Notes: 1) It is not so common in Mex and Col to intermeditate with Agri-SMEs. Many SHF are actually trying to reduce intermediation with stakeholders dedicated to commercialization. 2) Guidelines to select cooperatives to work with in an impactful and sustainable manner include, but are not limited to: 1) being legally constituted, 2) having good governance practices in place, 3) Having established record keeping procedures

Source: Dalberg Research; Stakeholder Interviews.

A few distinct factors support the path of AgTechs that are being successful in funding and scaling their operation

KEY SUCCESS FACTOR (KSF) OF NOTABLE AGTECHS WITH AN SHF FOCUS

NON EXHAUSTIVE

KSF	Funding from impact investment funds through clear impact outcomes	Bundling services to increase product demand	Integration of agriculture know-how into team capabilities	Use of partnerships to scale user acquisition	Offering technical capacity building for SHF
Overview	As VC or traditional funding is limited for AgTechs, successful funding models have relied on impact investment by making a solid impact case the backbone of its business model	Many AgTechs are opting for bundling of services, e.g., subscription fees + climate compensation to expand their revenue streams and strive for more financial sustainability	Counting with team members that have an understanding about agriculture or rural dynamics, strengthens the solution effectiveness and increases the chance of higher adoption	Leveraging on associations, retail chains in rural areas or B2B channels to access a greater pool of potential users are viable strategies to increase promotion and the chance of user acquisition	Integrating technical assistance targeting better digital literacy, improved technical knowledge and/or stronger business capabilities, improves user adoption, tool effectiveness and even user retention metrics
Example	 <p>By promoting their finance and advisory platform aimed at small to medium-sized producers, they have secured over \$300M USD from impact investors</p>	 <p>Kilimo's revenue stream comes from a mix of commercial margin for platform subscription, offset compensations</p>	 <p>Dedicated agronomy team, that support tech development, commercial efforts and field implementation and monitoring</p>	 <p>Partners with agroindustry actors to offer their information data solutions to their SHF suppliers</p>	 <p>Provides field trainings to assure correct technology usage and are promoting capacity building programs to support their offline data collection tool</p>

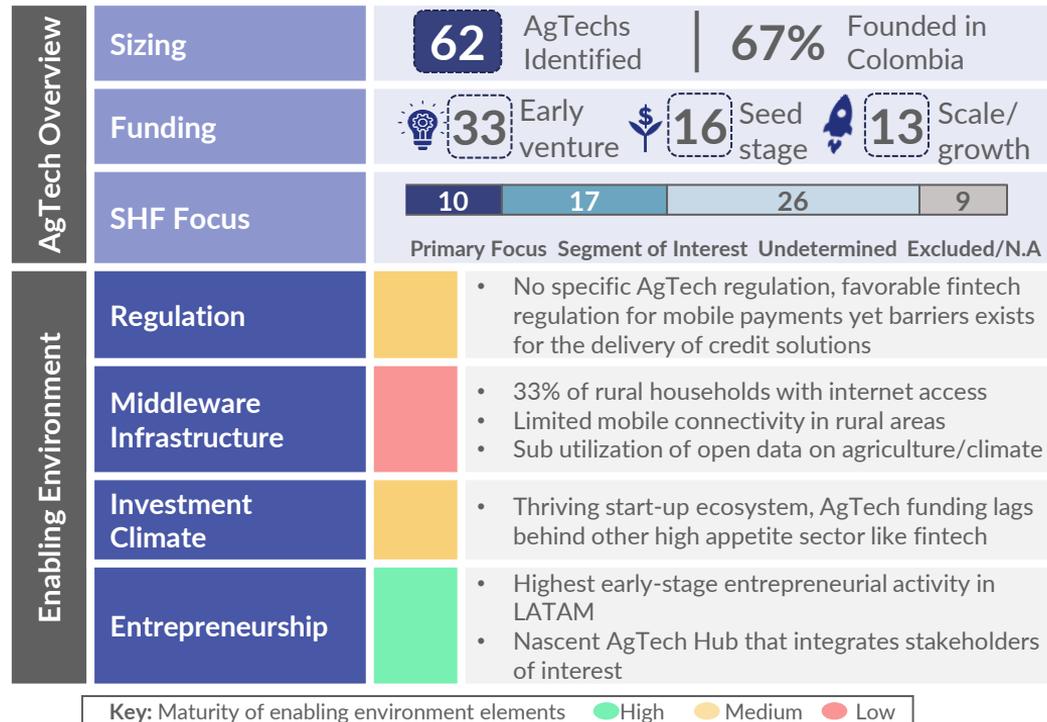
Source: Dalberg Research; Stakeholder Interviews.

COLOMBIA



The AgTech ecosystem in Colombia is in its early stages of development and it faces challenging enabling conditions

SUMMARY OVERVIEW OF THE AGTECH ECOSYSTEM IN COLOMBIA



Source: Dalberg Research; Stakeholder Interviews; Crunchbase; Colombia AgCenter.



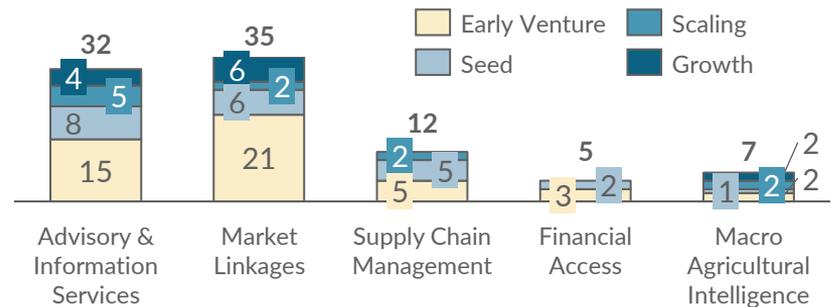
The AgTech ecosystem in Colombia is nascent, yet it has a growing pipeline with varied offerings across the Ag. value chain

AGTECH OVERVIEW IN COLOMBIA

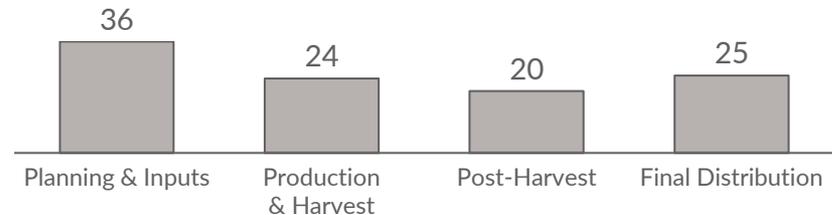
NON EXHAUSTIVE

- There are at least 62 active AgTech players¹ in Colombia, of which half were founded since 2017. AgTechs represent less than 4% of the entire start-up ecosystem in Colombia, well behind more active sectors like Fintech (+20%) or Retail tech (+8%)²
- Most of the AgTech offering is concentrated across the Information & Advisory and Market Linkages categories, where most relevant products are digital marketplace services, precision agriculture tools, and farm management software tools
- 78% of AgTechs are at an early venture, pre seed or seed funding stage. Only three identified AgTechs attained a series A or series C funding³ (one of them was founded Colombia)
- Only 16% of AgTechs have a stated primary focus to serve SHF⁴, the rest either serve them indirectly or have potential to offer a SHF specific solution

AgTech actors by category - # of actors⁵



AgTech Actors by Value Chain Focus - # of actors⁵



Source: Crunchbase; IADB; Stakeholder Interviews; Dalberg Research.

Notes: ¹Pure Biotech and Fintechs without a specific agriculture focus are not considered in the count; ²KPMG Colombia Tech Reporte 2022; adjusted with data from Fintech Colombia, La Republica; ³No AgTechs with current Series B financing were identified; ⁴Count takes into consideration AgTechs that directly engage with SHFs and those that collaborate with cooperatives and producer associations comprised of SHFs; ⁵Count takes into consideration AgTechs overlapping in multiple categories/value chain stages.





We identified at least 62 AgTechs in Colombia, the majority are in early stages and do not have a primary focus on SHF

AGTECH SOLUTIONS MAP

NON EXHAUSTIVE

Draft for review

		Stage of Maturity → +			
		Early Venture (<1M USD in funding and/or "1-10 employees")	Seed (1-5M USD in funding and/or "11-50 employees")	Scaling (5-50 MUSD in funding and/or "50-250" employees)	Growth (>50 M USD in funding and/or >250 employees)
SHF Focus ↑ + ↓ -	SHF is primary focus	AGRAPP LA CANASTA CurubaTech Petalii	AGROMOVIL IncluiTec Agroune ITTFARM	SISTEMA.bio <small>NO HAY DESECHOS. SOLO RECURSOS</small>	fairtrasa® <small>Fruitfully fair</small>
	SHF is a segment of interest	CULTIVANDO FUTURO VI Comproagro Galápp agrodai Harpo SiembraCo AgriManager beyco waruwa	Agrosmart croper.com Cajun Ganadero	EMETRIA agrosmart PRODUCEPAY frubana.	
	Undetermined focus, but applicable solutions to SHF	AGRICOMERCIO FRUTED itagué Perfektio GWA sady BI HEXA appgo APSOFT COLCAGRO loads Farmapp Bio	Agroptima SEV BloomsPal Agra-Win tvGAN CELOTOR SIMA	cropster METOS® <small>BY PESSL INSTRUMENTS</small>	Agrofy <small>EL MERCADO ONLINE DEL AGRO</small>
	Focus not on SHF, and/or solutions not applicable to SHF	Agrum BLACK SQUARE MAPSENS Simple Lynks Magic Fruits	SIOMA Urban Farmers <small>PRO</small>		AgritecGEO® PRECISAGRO®

Source: Dalberg Research; Stakeholder Interviews.



10 AgTechs have a primary focus on SHF, they offer diverse solutions from e-commerce to crowd investing models

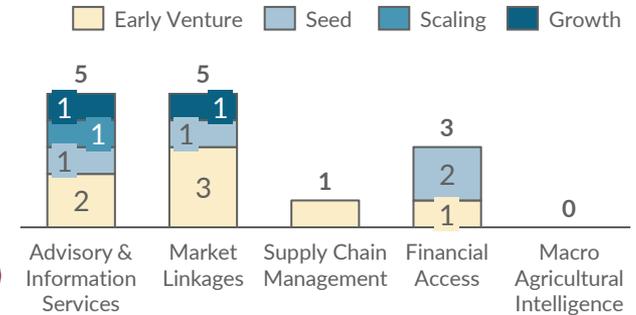
AGTECH OVERVIEW IN COLOMBIA – PRIMARY FOCUS ON SHF

NON EXHAUSTIVE

List of AgTechs with Primary Focus on SHF

AgTech	Solution	Funding	Founders
IncluirTec	Credit platform that intermediates between FI and SHF	\$420K USD - Pre-Seed	David Quintero (Co- Founder)
AGROMOVIL	Digital platform that helps small farmers to connect with new buyers	Undisclosed Seed	Andrew Mack (Founder/CEO)
LITTE FARM	Free and open-source farm management tool for current and aspiring sustainable farmers	Partly funded by UBC ¹	Hannah Wittman (Founder)
Agroune	Digital platform that helps farmers, who cannot access traditional banking to develop their crops	Undisclosed Seed	Weimar Mesa (CEO)
AGRAPP	Crowdfunding platform connecting investors to SHF along with technical assistance and management tools	\$175K USD Early Venture	Ricardo Duarte (Co-Founder)
LankaTech	Digital platform for supply chain traceability along with technical assistance	Undisclosed Early Venture	Paula Aponte (Co-Founder)
Petalii	B2B and B2C Ecommerce which articulates farmers to national and international markets	\$200K USD Early Venture	Juan Echeverry (Co-Founder)
LA CANASTA	B2C marketplace for organic foods harvested by small producers	Undisclosed Early Venture	Giovana Reyes (Co -Founder)
fairtrasa Fruitfully fair	Platform for technical knowledge, smart agriculture and market inclusion targeting SHF	Undisclosed	Patrick Struebi (Founder)
SISTEMA.bio	Biodigester and digital tools for waste management	\$38.2M USD - Series B	Alexander Eaton (CEO)

AgTech actors by category - # of actors²



AgTech Actors by Value Chain Focus - # of actors²



Source: Crunchbase; IADB; Stakeholder Interviews; Dalberg Research.

Notes: ¹Managed by the Food Sovereignty Lab at the University of British Columbia; ²Count takes into consideration AgTechs overlapping in multiple categories/value chain stages.

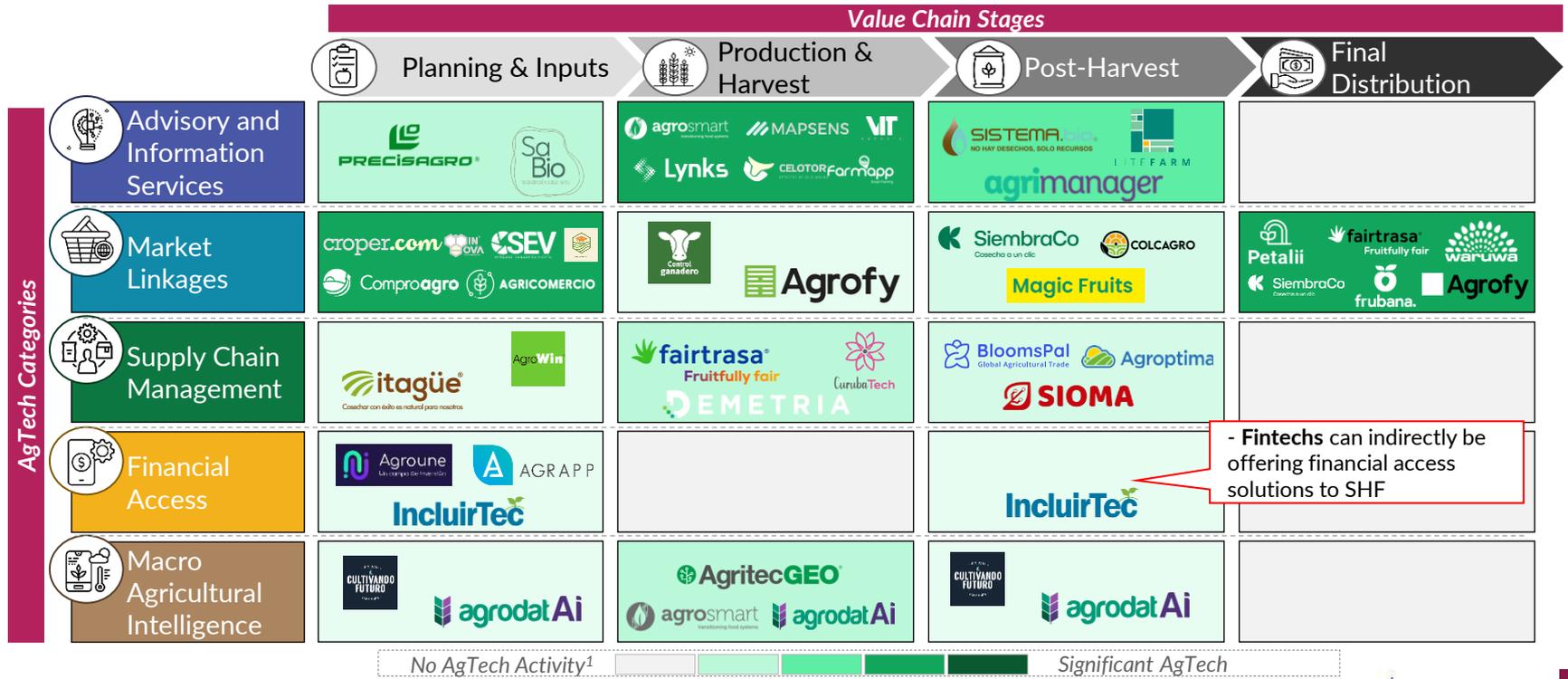




Although there is a range of AgTech solutions available, there is a stronger concentration on market linkages and advisory services

AGTECH MAPPING BY SOLUTIONS ACROSS THE AG. VALUE CHAIN - COLOMBIA

NON EXHAUSTIVE



Source: Dalberg Research; Crunchbase; Stakeholder Interviews.

Notes: ¹AgTech activity scale considers both the number of AgTechs within each cluster and a weighted maturity stage of companies within the cluster.





Within Advisory and Information Services, multiple AgTechs are developing solutions for crop monitoring and farm management



Advisory and Information Services

Overview

- There are at least 31 AgTech organizations providing advisory & information services
- At least 25 AgTechs are developing precision agriculture solutions, while at least 14 are developing farm management software
- Some AgTechs in this space are also developing solutions for waste management and community platforms

RELEVANT ACTORS

NON EXHAUSTIVE

Player	Overview	Solutions	SHF Focus
	<ul style="list-style-type: none"> • Based in Colombia • Privately funded, Early Venture Stage 	<ul style="list-style-type: none"> • Low-cost crop monitoring devices which can measure environmental conditions and soil properties 	<ul style="list-style-type: none"> • SHF is a segment of interest, in its mission states to improve the quality of life of low- and medium-income farming families through technology
	<ul style="list-style-type: none"> • Based in Colombia • Privately funded, Scale Stage 	<ul style="list-style-type: none"> • Farm management software that monitors inventories of livestock and advises on key processes 	<ul style="list-style-type: none"> • SHF is a segment of interest, +90,000 users, some claimed to be SHF
	<ul style="list-style-type: none"> • Based in Colombia • Privately funded, Seed Stage 	<ul style="list-style-type: none"> • Agricultural information and management system using IoT, Big Data, and satellite technology 	<ul style="list-style-type: none"> • SHF is a segment of interest, claims to test its software with +75 clients ranging from big producers to SHF
	<ul style="list-style-type: none"> • Based in Colombia • Privately funded, - \$350K USD of raised capital 	<ul style="list-style-type: none"> • Monitoring device that assists reproduction processes of livestock 	<ul style="list-style-type: none"> • Undetermined focus, but device technology viable for SHF use

AGTECH SOLUTIONS ACROSS THE VALUE CHAIN



Source: Crunchbase; IADB; Stakeholder Interviews; Dalberg Research.
Notes: ¹Companies may have solutions across multiple AgTech categories.



B2B and B2C e-commerce models are widely present, reducing intermediation between producers and end consumers



Market Linkages

Overview

- There are at least 38 **AgTech** organizations providing market linkages solutions in Colombia
- **B2B and B2C e-commerce** have been models of interest among investors, managing to fund +\$277M USD
- Other relevant nascent solutions involve supplies marketplaces and learning platforms for technical knowledge

RELEVANT ACTORS

NON EXHAUSTIVE

Player	Overview	Solutions	SHF Focus
	<ul style="list-style-type: none"> • Based in Colombia with operation in Mexico • Series C - raised \$270M USD 	<ul style="list-style-type: none"> • B2B E-commerce that minimize intermediation between producers and restaurants 	<ul style="list-style-type: none"> • SHF is segment of interest, already affiliated 1,000 farmers, some claimed to be SHF
	<ul style="list-style-type: none"> • Based in Colombia • Privately funded, Seed Stage 	<ul style="list-style-type: none"> • B2B and B2C E-commerce platform that delivers produce for end-users working directly with farmers 	<ul style="list-style-type: none"> • SHF is segment of interest, +1,000 affiliated producers across Colombia
	<ul style="list-style-type: none"> • Based in Colombia • Pre-Seed capital - \$500K USD 	<ul style="list-style-type: none"> • Cloud-based B2B and B2C demand aggregator platform for the purchase of fruits and vegetables 	<ul style="list-style-type: none"> • SHF is a segment of interest, +150 affiliated producers across Colombia
	<ul style="list-style-type: none"> • Based in Colombia • Pre-Seed capital of \$200,000 US 	<ul style="list-style-type: none"> • B2B and B2C Ecommerce which articulates small farmers with technology to sell flowers to the national and international market 	<ul style="list-style-type: none"> • Primary focus on SHF, +100 affiliated producers across Colombia

AGTECH SOLUTIONS ACROSS THE VALUE CHAIN



Source: Crunchbase; IADB; Stakeholder Interviews; Dalberg Research.
Notes: ¹Companies may have solutions across multiple AgTech categories.





Supply Chain-oriented solutions are mostly traceability tools, some target SHF to improve their produce's commercial value



Supply Chain Management

Overview

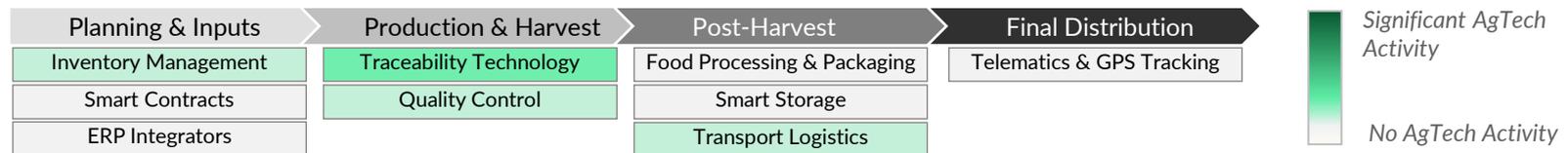
- At least 12 AgTechs were identified that offer SPM solutions with a focus on agriculture services
- There are emerging SaaS² initiatives to improve quality control and traceability across the value chain
- There are at least +100 startups in the SPM landscape in Colombia, although they don't have a focus on agriculture, they may act as future enablers of solutions in this space

RELEVANT ACTORS

NON EXHAUSTIVE

Player	Overview	Solutions	SHF Focus
	<ul style="list-style-type: none"> • Based in Israel, Serves Colombia and Brazil • Seed capital of \$3M US by Celeritas and Grupo Colpatría 	<ul style="list-style-type: none"> • SaaS-based solution for quality measurement and traceability throughout the supply chain 	<ul style="list-style-type: none"> • SHF is a segment of interest, in its mission states to serve tropical farmers ignored by new technological solutions
	<ul style="list-style-type: none"> • Based in Colombia • Privately funded, Seed Stage 	<ul style="list-style-type: none"> • Agricultural management software for inventory management and compliance with international standards set for the traceability of agricultural products 	<ul style="list-style-type: none"> • Underdetermined Focus, but software viable for SHF use
	<ul style="list-style-type: none"> • Based in Colombia • Privately funded, Early Venture Stage 	<ul style="list-style-type: none"> • Digital platform that promotes food transparency and supply chain traceability through connected and data-driven farming 	<ul style="list-style-type: none"> • Primary focus on SHF, works with +40 low-income farmers in Colombia

AGTECH SOLUTIONS ACROSS THE VALUE CHAIN



Source: Crunchbase; IADB; Stakeholder Interviews; Dalberg Research.

Notes: ¹Companies may have solutions across multiple AgTech categories. ²SaaS: Software as a Service.





Nascent Ag-FinTechs are developing innovative business models to address credit demand by SHF



Financial Access

Overview

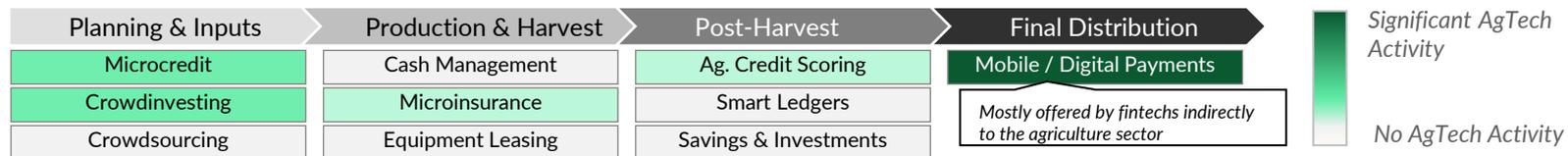
- There are at least 5 **AgTech** with a specific financial focus for agriculture
- Product development is focused on microcredit and matching investors with projects through Crowdfunding
- There are **over 300 FinTechs in Colombia**, some offering products for the **unbanked population**

RELEVANT ACTORS

NON EXHAUSTIVE

Player	Overview	Solutions	SHF Focus
InclurTec	<ul style="list-style-type: none"> • Based in Colombia with operations in Mexico • Seed Capital of \$1.3M US 	<ul style="list-style-type: none"> • B2B platform connecting SHF to financial service providers with intermediaries who lend directly to SHF 	<ul style="list-style-type: none"> • Primary Focus on SHF, 78% of their credit applications corresponded to SHF
AGRAPP	<ul style="list-style-type: none"> • Based in Colombia • Pre-Seed capital of \$175,000 US 	<ul style="list-style-type: none"> • Crowdfunding platform connecting investors to SHF along with technical assistance and management tools 	<ul style="list-style-type: none"> • Primary Focus on SHF, with +200 farmers receiving financing
Agrone	<ul style="list-style-type: none"> • Based in Colombia • Privately funded, Early Venture Stage 	<ul style="list-style-type: none"> • Digital platform that helps farmers, who cannot access traditional banking to develop their crops 	<ul style="list-style-type: none"> • Primary Focus on SHF, with +50 farmers receiving financing

AGTECH SOLUTIONS ACROSS THE VALUE CHAIN



Source: Crunchbase; IADB; Stakeholder Interviews; Dalberg Research.
Notes: ¹Companies may have solutions across multiple AgTech categories.



Although not their primary focus, several FinTechs support SHF with mobile payments and microcredit products

FINTECHS SERVING AGRICULTURE PRODUCERS

NON EXHAUSTIVE

1  **NEQUI** | Growth Stage
Privately owned

- **Mobile banking platform** with +14M users, launched by Bancolombia, one of Colombia's largest banks
- **Started with mobile digital payments**, now has a multi product digital portfolio made up of loans and remittances
- Has disbursed **+200K digital microcredit** in the country

2  **Lineru** | Growth Stage
+\$150M USD raised

- **Lending platform** focused on underbanked population
- 80% of their clients are entering the financial system for the first time
- Has disbursed **+3M digital loans for +\$190M USD** in the country

3  **aflore** | Scaling Stage
+\$29,1M USD raised

- **Lending platform** focused on microentrepreneurs and the underbanked
- Leverages existing community networks and technology for client profiling and credit disbursement
- Has disbursed **+\$17M USD digital microcredits** in the country

4  **MOVII** | Scaling Stage
+\$33,5M USD raised

- **Mobile banking platform** with +4M users
- Has had a high penetration among hard to reach and unbanked populations by being a major disbursement vehicle for multiple government cash transfer programs

Source: Crunchbase; Dalberg Research.



AgTech specializing in Macro Ag. Intelligence deliver relevant data solutions that enhance the overall pool of open public data



Macro Agricultural Intelligence

Overview

- There are at least 7 **AgTechs** involved, directly or indirectly, in developing solutions that support macro agricultural intelligence for farmers and decision-makers
- The Colombian Government has open data sources on multiples agriculture variables such as soil studies, weather and climate forecasting data, and agricultural productive offer

RELEVANT ACTORS

NON EXHAUSTIVE

Player	Overview	Solutions	SHF Focus
agrosmart	<ul style="list-style-type: none"> • Based in Brazil, Serves Mexico and Colombia • Privately funded - \$15,5 M USD of raised capital 	<ul style="list-style-type: none"> • Climate smart platform that brings together the main data, information and indications for crops 	<ul style="list-style-type: none"> • Undetermined focus, of the 100,000 existing users, an undisclosed share have less than 1 Ha.
agrodai	<ul style="list-style-type: none"> • Based in Colombia • Privately funded, Early Venture Stage 	<ul style="list-style-type: none"> • AI-enabled open access data platform for decision making through data, indicators, forecasts and risk models 	<ul style="list-style-type: none"> • SHF is segment of interest, with +200K small producers using their platform

Main Open Data Sources on Agriculture and Environment in Colombia

- **IGACC** (Land tenure and characterization, soil studies, Natural capital, and forestry related data)
- **IDEAM** (weather, hydrological, climate, environmental, natural hazard and geospatial related data)
- **SIPRA** (Products and analysis of information for rural agricultural planning)
- **SIGRA** (Information System for Agricultural Risk Management)
- **EVA** (Information and knowledge about the country's municipalities agricultural productive offer)

AGTECH SOLUTIONS ACROSS THE VALUE CHAIN



Source: Crunchbase; IADB; Stakeholder Interviews; Dalberg Research.
Notes: ¹Companies may have solutions across multiple AgTech categories.



Emerging clusters of impact solutions and increasing interest from social investors are key trends in the AgTech ecosystem

KEY TRENDS FOR AGTECH DEVELOPMENT IN COLOMBIA

	Trend	Overview	What stakeholders are saying
1	Emerging clusters of high-impact solutions	A growing pipeline of AgTech is observed in i) precision agriculture (VIT Sensors), ii) marketplaces for inputs (Croper.com) and off-take markets (Waruwa), and iii) farm management software (Agrimanager)	<p>We have seen that a key for acceleration it's a clear understanding of the problem and a solution that is close to the producer reality and its needs -AgTech Hub</p> <p>We see many NGOs and other stakeholder willing to participate in AgTech Development, although there are no clear long-term plans for the se sector as a whole -AgTech Hub</p>
2	Emerging viable business models primarily addressing SHF needs	10 AgTechs have SHF as a primary focus. Initiatives like Fairtrasa, or IncluirTec, have proven a viable business model with scalable revenue and impact potential	
3	High interest of investors towards models with ESG/ climate outcomes	Models like IncluirTec or Agrapp , raised capital successfully from social investors by leveraging social impact-oriented solutions benefitting SHF	

Source: Dalberg Research; Stakeholder Interviews.



Other trends for the ecosystem growth include bundled solutions, embedded financing and international expansion

KEY TRENDS FOR AGTECH DEVELOPMENT IN COLOMBIA

	Trend	Overview
4	Open partnerships with FIs to integrate financial products to AgTech solutions	AgTechs like Croper.com and Loads integrate financial products of formal financial institutions within their AgTech platform
5	International AgTechs expanding into Colombia	Multiple AgTechs from international origin (Agrofy, LiteFarm, etc) are expanding into Colombia, validating market demand for AgTech solutions
6	Bundled services/products increase demand while diversify revenue streams	AgTech companies like SiembraCo and Bloomspal integrate services and products into their existing models, offering users a centralized platform that provides multiple solutions in more than one stage of the value chain

What stakeholders are saying

We have a nascent ecosystem with remarkable pioneers pushing innovative solutions for Agriculture impact

-AgTech Advisor

We have partnered with a public insurance provider to integrate microinsurance to our credit agreements and to assist with TA to improve middleware infrastructure at the field level

-AgTech Organization



Colombian AgTechs' challenges include limited funding, costly user acquisition, and untapped agricultural knowledge

MAIN CHALLENGES FOR AGTECH DEVELOPMENT IN COLOMBIA

Challenge	Overview	What stakeholders are saying
Specific for AgTechs		
1 Limited funding for accelerating and scaling	<ul style="list-style-type: none"> 8 of 13 AgTechs in Colombia at a scaling or growth stage, are of foreign origin with capital raised outside of Colombia There is interest in international impact investment funds for AgTech in Colombia (Acumen, UNDP, USAID) VC funding remains limited for AgTech in Colombia, higher risk perceived in AgTech business models 	<p>We have not seen cases of large corporations investing in AgTech issues. This could contribute to the dynamization of the ecosystem -AgTech Organization</p>
2 Difficult and costly user acquisition due to dispersion of rural producers	<ul style="list-style-type: none"> Many AgTechs can't rely on traditional promotion mechanisms for user acquisition, for instance Agrapp outreach mechanisms depends on word-of-mouth among farmer networks like producer associations and federations Low connectivity in rural areas mean additional offline methods are needed to support scaling 	<p>To have a more consolidated ecosystem, the main challenge relies on connecting AgTechs with large companies and getting them to integrate SHF on their value chains. Connecting with large companies is very difficult, it is a very closed world. AgTechs don't have those contacts. That is why acceleration programs become very interesting to start opening doors for AgTechs -AgTech Organization</p>
3 Untapped utilization of agricultural Know-How	<ul style="list-style-type: none"> AgTechs may not access technical know-how that often is developed by academics or research centers 	<p>Whoever develops the AgTech solutions does not necessarily know about agriculture. Sometimes, these solutions are not related to reality and the ways of cultivating the producers. -AgTech Expert</p>

Source: Dalberg Research; Stakeholder Interviews.



Limitations in data assets and a lack of understanding of SHF realities impact AgTech development and uptake in Colombia

MAIN CHALLENGES FOR AGTECH DEVELOPMENT IN COLOMBIA

Challenge	Overview	What stakeholders are saying
Specific for AgTechs		
4	Public sector data limitations <ul style="list-style-type: none"> There is limited development in data assets and midstream infrastructure, with a lack of progress development from the governmental level 	<p>Regarding data assets and midstream infrastructure, basically they don't exist. There is very little development in this regard</p> <p style="text-align: right;">- AgTech Hub</p>
5	Entrepreneurship concentration in higher social classes <ul style="list-style-type: none"> Entrepreneurship is frequently seen among higher social classes with the financial means and fewer economic responsibilities to take risks 	<p>The idea here is to level the playing field so that entrepreneurship is not only for the elites</p> <p style="text-align: right;">-Entrepreneurship Expert</p>
6	Limited integration of human-centered-design (HCD) principles in product/service development <ul style="list-style-type: none"> There are few AgTechs in Colombia who integrate HCD principles on their solutions development targeted at rural populations. CurubaTech has tested and developed a user-friendly technical assistance platform that leverages WhatsApp as its main interface 	

Source: Dalberg Research; Stakeholder Interviews.





Moreover, AgTech growth faces obstacles for users and ecosystem limitations

MAIN CHALLENGES FOR AGTECH DEVELOPMENT IN COLOMBIA

Challenge	Overview	What stakeholders are saying
Specific for AgTech User		
7	Barriers to Product-User Fit <ul style="list-style-type: none"> Most farmers have low levels of education (19% none and 68% basic) as well as little ICT knowledge and access, limiting capabilities to use technology 	<p>I think we really need to understand the lives of small-scale farmers. We need to design technology based on the actual needs of the user</p> <p>-AgTech Organization</p>
8	Risk aversion of farmers towards innovation and change <ul style="list-style-type: none"> Farmers are hesitant to switch from established relationships with distributors or input sellers to alternative options offered by AgTech companies Communicating AgTech to farmers can be difficult, especially due to age limitations (47% over 50 years) 	<p>Farmers sometimes find themselves in relationships that, although not advantageous, they don't want to get out of because it provides them a sense of security</p> <p>-AgTech Expert</p>
Specific for the Ecosystem		
9	Low connectivity infrastructure in rural areas <ul style="list-style-type: none"> Only 29% of rural population has access to internet Despite Colombia's alleged 100% mobile-cellular network coverage, there are quality and reliability issues 	<p>During our journey with companies and producers, we have encountered high connectivity challenges. Although some startups provide offline solutions, this is still an important issue</p> <p>-AgTech Hub</p>
10	Lack of government support <ul style="list-style-type: none"> Regulations do not hinder AgTech operations, but the main gap is the lack of incentives for technology adoption 	
11	Weak networking of Stakeholders <ul style="list-style-type: none"> More coordination is needed among AgTech actors as well as integration on data assets and research topics 	<p>Coordination is required among multiple actors. Such coordination has been difficult and lacking.</p> <p>-AgTech Expert</p>

Source: Dalberg Research; Stakeholder Interviews.

Annex

This report was informed by desk research and 20+ interviews with relevant organizations and AgTech experts

MAIN REPORTS/SOURCES CONSULTED

- [Agricultural Policy Monitoring and Evaluation](#) (OECD)
- [AgTech Ecosystem Mapping in Spanish-speaking Latin America and the Caribbean](#) (Brixton Ventures Lab)
- [Colombian National Agricultural Census](#) (DANE)
- [Colombian National Agricultural Financing Fund – statistics](#) (FINAGRO)
- [Crunchbase](#)
- [Financial inclusion report – Colombia](#) (Banca de las Oportunidades)
- [FinTech Radar](#) (Finnovista)
- [Food and Agriculture Organization Statistics](#) (FAO)
- [Global Findex Statistics](#) (World Bank)
- [Landscape of the AgTech Ecosystem for SHF in Latin America and the Caribbean](#) (IADB)
- [Mexican National Agricultural Survey](#) (INEGI/SADER)
- [Mexican National Survey on ICT Access and Use](#) (INEGI)
- [Mexican Agrifood Landscape](#) (SADER/SIAP)

Among other agriculture / AgTech related sources and reports

STAKEHOLDERS ENGAGED

AgTechs



Funders



Accelerators



RF team

