FIELDS OF PROMISE

The Untapped Investment Potential of the South American AgTech Space

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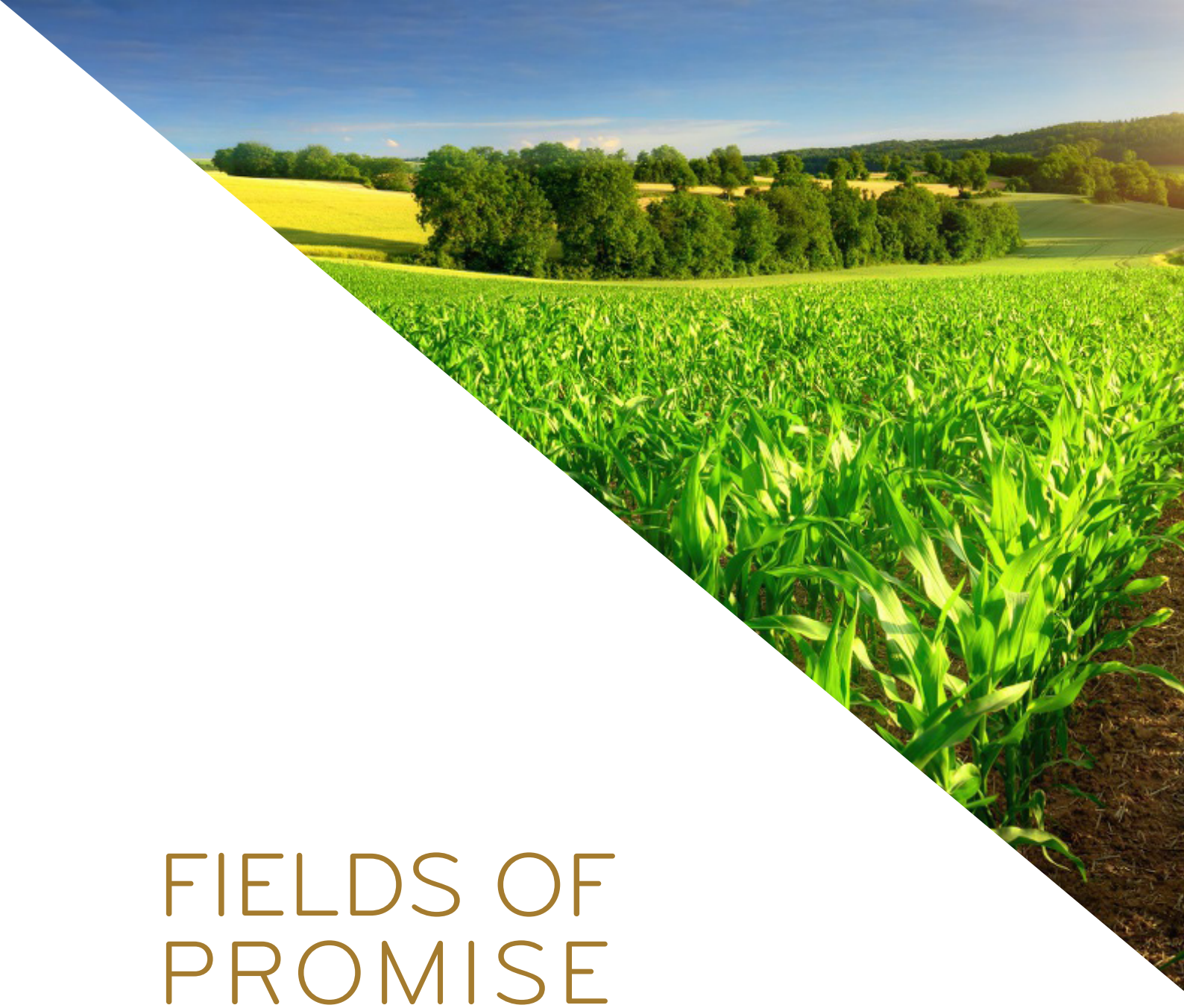

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EXECUTIVE SUMMARY

The Food & Agriculture Asset Class

• The food and agriculture asset class has emerged as a new and highly relevant investment space due to dynamic supply and demand factors that include shifting demographics, sustainability pressures, and evolving consumer concerns. Since 2000 these pressures have been exacerbated by the rise of emerging economies and growing global demand for biofuels.

• The last ten years have seen the emergence of the global food and agriculture sector as an institutional asset class with increasing interest from both private and institutional investors. Between 2005 and 2015, the number of investment funds specializing in food and agriculture assets jumped from about 30 to over 300, with current AuM in excess of $52 billion.

The AgTech Venture Capital Space

• The venture capital space has remained a niche segment within the asset class: only 4% of the AuM of the funds tracked by Valoral Advisors are VC firms. Moreover, a majority of that capital is concentrated in North America, and to a lesser extent in Europe. Combined, the two regions account for over 80% of the total capital held by the 34 VC Firms that manage the 42 VC funds analyzed in this study. More broadly, we identify 170 VC firms exclusively investing in or with interest in AgTech.

• The early days of the agricultural commodity boom in the 2000s were led by investments in farmland, agricultural commodities, and listed companies. However, more recently the VC space has been gaining traction, with growing investments in AgTech. In 2015, against a slump in U.S. farm income, AgTech investments doubled to a record $4.6 billion according to AgFunder. Although last year's rapid growth has resulted in a funding crunch so far in 2016, we nevertheless expect activity to continue at high levels.

• The AgTech VC space is enjoying unprecedented attention as farmers are gradually embracing new technologies in their fields, while hungry investors in search of the next unicorn back new start-ups. The sector cuts across the traditional areas of VC investments, and in many cases, stakeholders are applying technologies from other sectors to the agriculture space.

• The imperative of AgTech is to boost global agricultural productivity in a sustainable way. Achieving this objective will require collaboration between those who make up the ever expanding ecosystem of AgTech, including but not limited to, entrepreneurs, corporations, funds, and academics. In particular, the role of VC will be elevated as global innovation funding shifts away from government backed research to technological innovation funded by private VC.

Realizing The Investment Potential of the South American AgTech Space

• As the AgTech market grows in developed countries, a clear path emerges for companies and investors to expand their scope to new markets. In our opinion there is a compelling case that points to South America as the immediate opportunity given the region's agricultural diversity and significance as well as its natural resource wealth.

• Despite all its agricultural attributes, the region also has a unique risk profile and it is critical for investors to fully understand the relevant idiosyncrasies before deciding to move forward with any projects.

• The pressure faced by South American farmers to optimize their inputs and outputs in a sustainable way is the same fundamental driver that has led to the adoption of AgTech innovations in more developed regions. In fact, it could be argued that the need for AgTech in South America is even greater when considering yield gaps and the region's unique social and environmental challenges.

• AgTech is not a new concept for many South American farmers and other stakeholders in the agricultural value chain, but until recently a variety of factors prevented the widespread adoption of these technologies. Today, South America is home to a large and established agribusiness market in which these new developments can take root. Four key drivers have made South America a more AgTech friendly environment including: i) professionalization and consolidation across the farming sector; ii) the adoption of precision agriculture as a core component of farm management;

iii) the ability to address local agronomical challenges with biotech innovation; and iv) growing sustainability pressures.

• The challenges faced by South American start-ups are largely the same as those faced by their counterparts in the developed markets of North America and Europe. This likeness can be a huge advantage for local AgTech entrepreneurs, who can learn from the past experiences of similar start-ups in the U.S. and European markets. These challenges center around four core areas: i) how to gain traction in this emerging space; ii) how to build applications and platforms with the potential to make a meaningful difference to farmers' profitability and sustainability; iii) how to build a commercial distribution network for these AgTech innovations; and iv) understanding where the AgTech value creation will come from and where the exits will materialize for VC investors.

• We believe that the new generation of farmers, young people in their 20s and early 30s who take the lead on family-owned farms and agribusinesses, will be particularly willing to experiment with new technologies and incorporate them in their fields and operations. In our view, this new generation will open the gates to increased AgTech adoption across the region.

• We have mapped more than 60 companies in the regional AgTech space, concentrated in Argentina, Brazil and Chile, that provide a wide array of technologies and services. Although we have not included the rest of Latin America in this study, we have also noticed increasing AgTech innovation throughout the region with Mexico in particular growing into a hub.

• These companies are at a variety of developmental stages. While the key drivers of agricultural technology and food system innovations are common across the region, there seems to be particular interest in precision agriculture and biotechnology, two areas which target some of the largest challenges in the sector and which are relatively more scalable.

• Across the South American AgTech space, we have seen already some early successes which make the case for investors, including: i) The growth path of Bioceres, an Argentinian biotech Co.; ii) the internationalization of S4 which operates at the intersection of AgTech and FinTech by leveraging big ag data for risk management; iii) the launch of Frontec by large corporates that recognize the opportunity for innovation; iv) the arrival of Canadian Co. FarmersEdge to Brazil; and v) the acquisition of Brazilian Cos. Arvus Tecnologia and iLab Sistemas back in 2014 by Hexagon, a Sweden-based provider of visualization technologies.

Opportunities Ahead

• Despite the many advancements made in South America's AgTech space, it is clear that tremendous opportunity still lies ahead for the sector. One of the most active areas is the inbound and outbound investments by AgTech companies themselves, a strategy that may apply to either those in the region who have an innovative technology to roll out in other markets, or to those start-up companies from abroad - usually backed by VC fund - who are interested in expanding their geographical reach.

• Foreign AgTech companies may opt to develop partnerships with local players, which are critical to penetrate the regional market, as they can provide local agronomical expertise and access to the local agricultural network. Though it may be early for foreign AgTech companies to break into the South American market through acquisitions, anecdotal evidence collected through our network points to this path becoming increasingly viable in the future.

• Another way to take advantage of this rapidly growing segment is through the facilitation of capital. We believe that those VC investors and VC Funds who find the region's fundamentals compelling and are willing to invest in young AgTech companies will find themselves with a powerful early mover advantage. We believe that soon a number of regional AgTech VC funds will emerge to facilitate private capital deployment in the region. Open innovation partnerships could also be launched in South America with support from local and international agribusiness companies.

• Impact investors and Development Finance Institutions ("DFIs") are also likely to become a relevant source of capital for local AgTech start-ups as there is a growing realization that funding AgTech innovations can provide a positive impact in multiple dimensions.

Credit: Alexander Kirch/ Shutterstock.com

• Last but not least, traditional agribusiness and farming companies around the world are also joining the investment spree in AgTech. In South America, we notice these companies are increasingly willing to invest in AgTech start-ups to integrate these technologies into their operations and to develop new revenue models. We anticipate that local, leading farm companies will participate in testing platforms to validate local and foreign technologies and speed-up their adoption by the local farming community.

Six AgTech Themes That Characterize the South America Opportunity

• We have identified six themes of the regional food and agricultural markets through which AgTech innovations can have large impact over the next five to ten years:

• **Sustainably improving crop yields** - through continued innovation in genomics, biologicals, and broader adoption of precision technologies combined with agronomic support.

• **Leveraging technology to supply the global animal protein demand** - by improving pasture and animal feed probiotics while leveraging precision technologies tailored to livestock farming.

• **Developing risk management solutions & enabling market transparency** - by using the data generated from the intersection of AgTech and FinTech to improve predictive models and support decision making of farmers, insurers, commercial lenders, and input suppliers among others, especially given volatile weather patterns.

• **Tracing food & tackling food waste** - through a new wave of innovation designed to reduce food losses in the regional supply chain, as well as food waste at the consumer level by making distribution and storage systems more efficient and improving the role of packaging in waste reduction.

• **Producing & delivering better food to more conscious consumers** - by enabling consumers around the world to express their preference for healthy, nutritious, and convenient food, including functional foods and beverages.

• **Pursuing green business models & rethinking natural capital** - by reducing the net environmental footprint of crop and livestock production systems through biomass energy, regenerative agriculture, holistic production models, BioTourism, and GHG offset credits.

• Valoral and Quarterra are strong believers in the future of AgTech in South America. We believe that the fundamentals are clear and that those who make the first investments into the space will be rewarded for their efforts. More than just financial benefits, we believe that the introduction of these technologies will truly bring positive social, economic and environmental change to the region. We look forward to achieving these objectives together.

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1. INTRODUCTION

VC INVESTING IN THE SOUTH AMERICAN FOOD & AGRICULTURE INDUSTRY – A PROMISING FUTURE

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The food and agriculture industry is undergoing extraordinary change, driven by shifting demographics, globalization, sustainability pressures, new energy sources, concerns about food safety and security, and increased health and wellness awareness. While no one of these challenges is uniquely new, collectively they have become increasingly obvious since the early 2000s when the rise of emerging economies, such as China, and the expanding global drive for biofuels led to unprecedented demand. As a result, the food and agriculture asset class emerged as a new and highly relevant investment space with the ability to channel much needed capital to this vital sector.

Today, the asset class has entered a consolidation phase thanks to cooler growth in China, maturing biofuel demand and several years of strong harvests resulting in healthy global crop stocks. But although today's dynamics have temporarily reduced farm income and dampened sector returns, the key structural factors driving food demand are more real than ever.

The United Nations predicts that the global food system will have 9.6 billion people to feed by 2050, which will require 60 to 70% more food than is produced today. To achieve this ambitious task, the industry will have to discover new ways to improve productivity while minimizing inputs, managing costs, and respecting the environment.

Overcoming these challenges will require investments in new and emerging technologies. Venture capital investments are becoming increasingly relevant to the asset class as new funds are being launched specifically within the food and agriculture space to support a new class of AgTech companies that are redefining the ways in which we feed the world.

These funds invest in early-stage, technology-literate agricultural businesses that are developing and marketing solutions to unlock productivity throughout the food system. However, the vast majority of this activity is taking place in North America, with other sparks of activity occurring across Europe, Israel and India.

South America, on the other hand, is one of the few regions of the world that has the opportunity to greatly expand production and export the food surplus to the world. The region benefits from land availability and natural resource wealth, but further technological innovation across the value chain is required to capitalize on these attributes.

There is a rapidly growing culture of agricultural entrepreneurism spreading across South America. These entrepreneurs are creative, resilient, and are developing a number of compelling solutions that will revolutionize global food systems. While the emergence of the sector is very exciting, it is very much in its infancy and only time will tell of the full impact that these technologies will have upon regional and global agriculture.

In this paper, in a joint effort by Quarterra and Valoral Advisors, we review the emerging AgTech landscape in South America, share a map of early start ups, and explore possible paths of evolution for the sector. The challenge of feeding the global population requires a collaborative approach, shared between entrepreneurs, investors, and industry specialists. We thank you for your interest and look forward to embarking on this journey together.

2. THE FOOD & AGRICULTURE ASSET CLASS

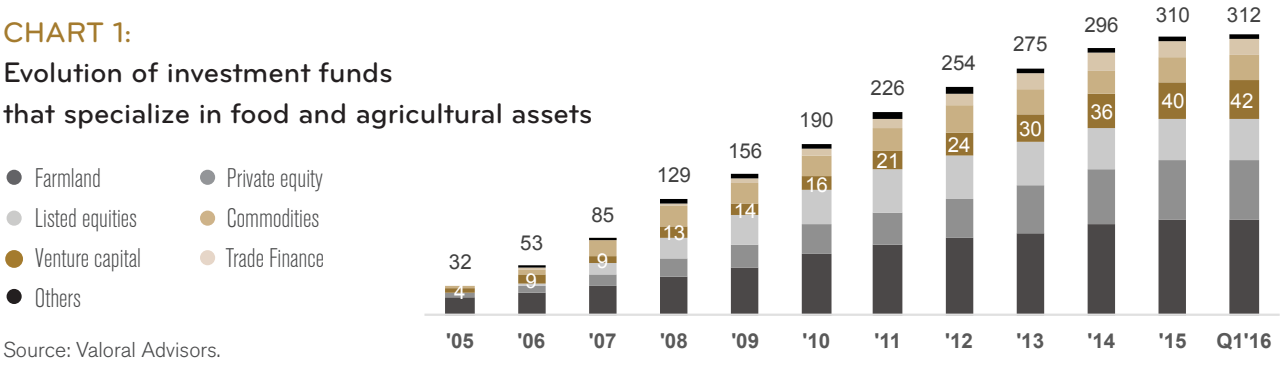
REAL ASSETS, SOLID FUNDAMENTALS

The last ten years have seen the emergence of the global food and agriculture sector as an institutional asset class with increasing interest from private and institutional investors alike. Capital has been flowing into the sector and across the complete asset spectrum – from liquid strategies including listed equities and commodities, to illiquid strategies that include farmland, private equity, venture capital (VC) and structured finance.

Between 2005 and 2015, the number of investment funds specialized in food and agriculture assets jumped from around 30 to over 300, with current AuM in excess of $52 billion.

CHART 1:

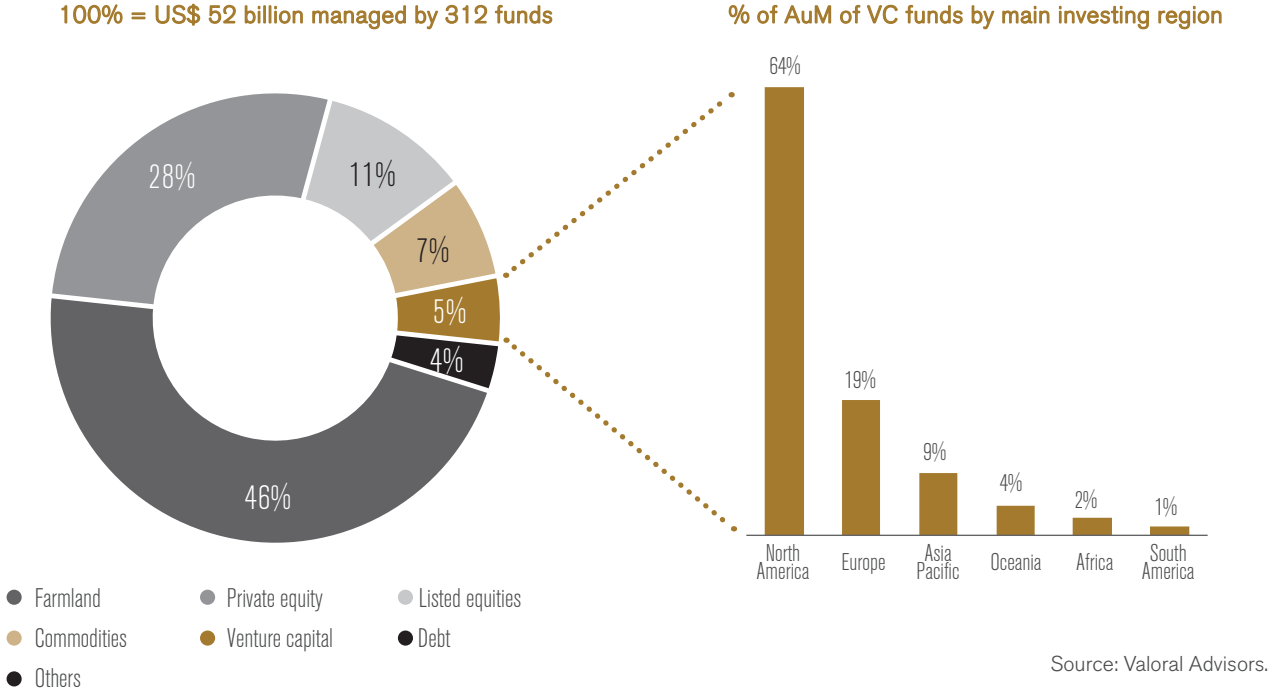
Evolution of investment funds that specialize in food and agricultural assets



Source: Valoral Advisors.

CHART 2:

AuM of investment funds specialized in food and agricultural assets, by asset category



Source: Valoral Advisors.

The venture capital space, represented by investment funds specializing in early stage ventures across the food and agriculture value chain, has remained a niche segment within the asset class. In fact, only 4% of the AuM of the funds tracked by Valoral Advisors correspond to venture capital funds. Moreover, a majority of that capital is concentrated in North America, and to a lesser extent in Europe, with both regions combined accounting for over 80% of the total capital held by the 34 VC Firms that manage the 42 VC funds analyzed in this study.

It is striking that South America, one of the world's most prominent agricultural regions, has a negligible representation of venture capital funds specialized in this sector. We are convinced that the time has come for VC investors to embrace the region through South American AgTech start-ups.

3. THE FOOD & AGRICULTURE VENTURE CAPITAL SPACE

NEW TECHNOLOGIES ARE EMERGING WITHIN THE AGTECH FIELD

It took several years for the food and agriculture venture capital space to gain a place in this global asset class. The early days of the agricultural commodity boom in the 2000s was led by investments in farmland, agricultural commodities, and in listed companies - from those that provided inputs like fertilizers, seeds, chemicals and tractors, through those that process and trade commodities, all the way to packaged food companies.
Beginning a few years ago, however, the VC space has been gaining traction, specifically with investments in AgTech heating up. The need to produce more food on scarce land resources, the emerging co-existence of food production with biomass for energy or chemicals production, and the convergence of agricultural technologies with industrial innovations has made AgTech an attractive field for VC investors. In 2015, against a slump in U.S. farm income, AgTech investments doubled to a record $4.6 billion according to AgFunder, the AgTech investment marketplace. Although recent rapid growth has resulted in a funding crunch so far in 2016, we nevertheless expect activity to continue at high levels.

While reviewing the key factors that enabled the growth in VC activity, several common characteristics and trends surface:

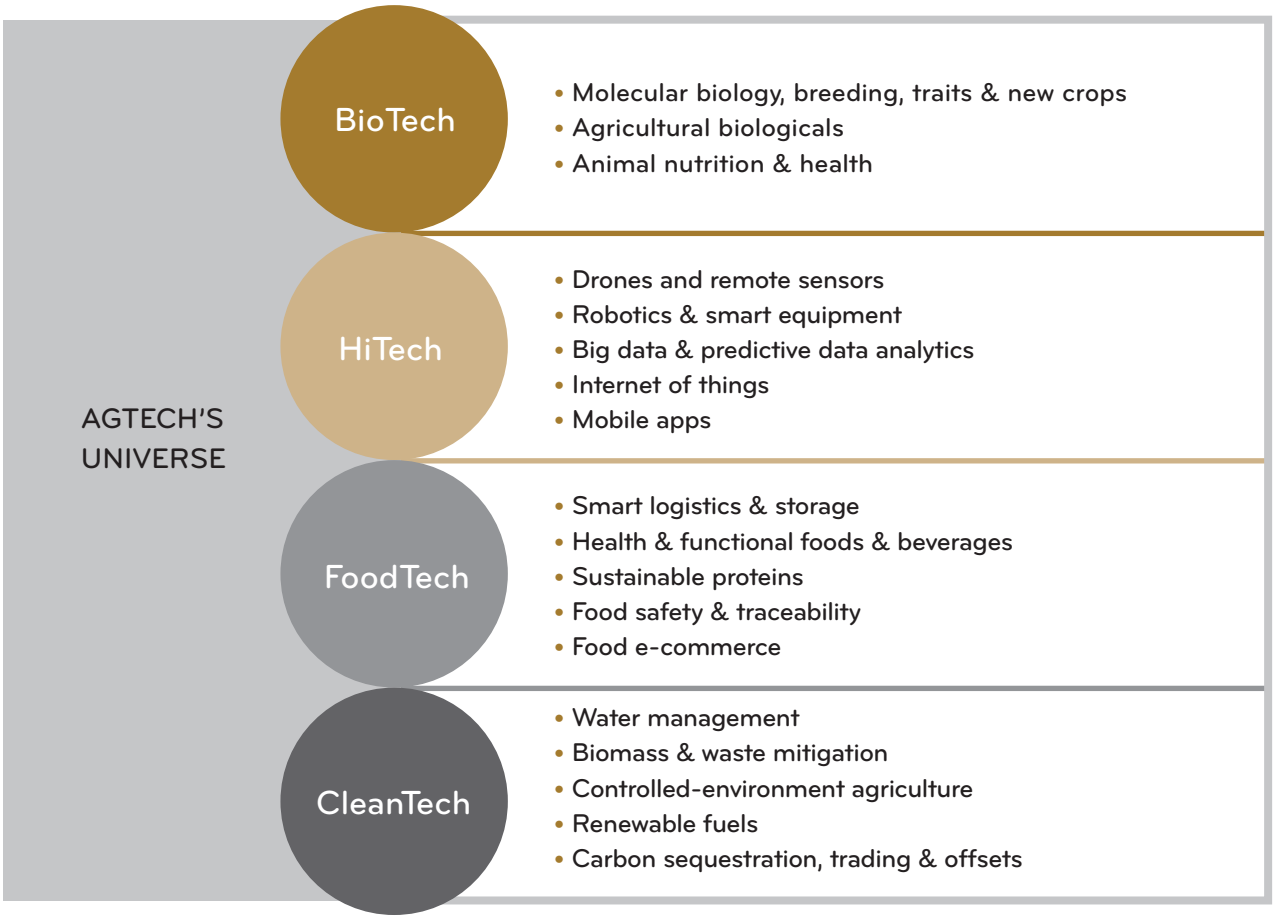
- **The push factor:** After several years of increasing farm incomes, the farming sector became capitalized enough to experiment with new technological innovations. Simultaneously, several technologies including satellite imagery, drones, remote sensors, big data, and cloud services had matured, and begun to look for a way to grow out from their Silicon Valley roots into other industries – true evidence of technological transfer.
- **The pull factor:** Investors in general, and particularly those active in the food and agriculture asset class, have increasingly perceived a lack of available, competitive opportunities to gain exposure to the food and agriculture theme. This is due in part to restrictions on land acquisition by foreign investors in many countries, lack of diversification in listed equities, and the increased volatility and poor performance of agricultural commodities in recent years.

> *“In short, innovations in the agriculture space have been welcomed both by farmers willing to implement new technologies in their fields, and by hungry investors willing to back new start-ups as they search for the next unicorn.”*

For the purpose of this study, we refer to AgTech VC funds as those who invest with a focus on early stage companies which develop and market products and services in the confluence of BioTech, HiTech, FoodTech and CleanTech, as applied to agriculture. While these funds may target different sub-sectors in different markets, they are all looking to invest in start-ups that are developing breakthrough technologies for the broader food and agriculture industry.
Indeed, the AgTech space cuts across traditional areas of VC investments, including BioTech and life sciences, HiTech and IT, emerging FoodTech and associated innovation for food and beverage processing and distribution, as well as CleanTech and associated sustainability themes.

DIAGRAM 1:

The technological convergence.



Across the AgTech universe, we see that technologies which have been developed for other purposes are now being applied to agriculture. This wide range of technological advancement is set to accelerate the sector toward the next food and agriculture frontier:

BioTech

• Biotechnology has been practiced for a long time in agriculture to improve crops through selection and breeding. Advances in the field of molecular biology have allowed DNA manipulation at the molecular level, increasing crop productivity by enabling the introduction of qualities such as disease resistance and increased drought tolerance into the crop genome.

• Biotechnology is also being used to accelerate breeding programs for livestock and fish and to broaden the spectrum of traits that can be addressed.

• **Two important technologies have surfaced as key drivers for future productivity:**

- **Agricultural genomics** is expected to drive productivity by identifying and capitalizing on desirable traits, leading to healthier and more productive crops and livestock.

- **Agricultural biologicals**, the term for topical or seed treatment products made from or containing natural materials, are being developed to protect crops from pests, weeds, and diseases, and to keep crops healthy. Agricultural biologicals can complement or replace traditional agricultural fertilizers and chemicals, reducing environmental impact.

HiTech

- **The IT revolution underway in the world is quickly finding its way into agriculture. If precision agriculture was enabled by the advent of GPS in the 90s, the smart farm of today is driven by data and the ability to collect it, analyze it, and use it to improve decision making.**
- Mainstream technologies such as mobile apps, digital mapping, remote sensors, big data, smart equipment, cloud-based systems, and predictive data analytics are being connected through integrated farm management systems that can deliver higher yields, productivity gains, and sustainability improvements.

FoodTech

- **The global food market is currently subject to significant disruption driven by the ongoing challenges, not only of feeding a growing global population, but of doing so in a healthy and sustainable way**. Busy lives, ageing populations and rapid urbanization mean that consumers are looking for food technologies to assist them in maintaining healthy lifestyles.
- **The FoodTech space includes a growing number of technological developments applied across the entire business of food, both B2B and B2C**, that includes ingredients delivering science-based benefits, technologies that improve manufacturing processes, and technologies and services that help consumers to stay healthy.
- The food delivery space, in particular, has attracted large investments with the dominant theme of bringing digital convenience to the existing takeaway space. Another rapidly growing sector is the functional beverages market which is comprised of energy drinks, sports drinks, functional waters, functional dairy beverages, functional juices and other value added beverages.

CleanTech

- Clean technologies (or "CleanTech") are intended to provide solutions to global climate and resource challenges.
- **CleanTech can help mitigate agriculture's environmental footprint related to greenhouse gas emissions, water depletion and pollution, and soil degradation, among others.**
- Biomass and waste mitigation, carbon sequestration, trading and offsets, biomaterials and smart water irrigation systems are among the technologies and business developments that can address these challenges in the agriculture space.

> *"At the core of AgTech innovation is the imperative to improve global agricultural productivity in a sustainable way. By leveraging new technologies farmers can produce more while also conserving and protecting soil, water, and other natural resources. Meanwhile consumers enjoy access to more, diverse, and better foods."*

3.1 FRAMING THE AGTECH UNIVERSE

The AgTech sector holds many opportunities for investment, with innovation needed throughout the entire food and agriculture value chain. The table below summarizes the main sectors and sub-sectors in the AgTech universe, demonstrating the breadth of distinctive technologies, products, and services.

SECTOR	SUB-SECTOR
Novel Farming Systems	Aquaculture Systems & Technologies Urban & Indoor Farming
Farm Mechanization & Automation	Robotics & Autonomous Machinery Innovative Materials & Applications Water & Irrigation Systems Livestock & Dairy Solutions
Biotechnology	Plant Genetics Biologicals - Biostimulants & Biopesticides Animal Nutrition & Health Advanced Fish & Animal Breeding
Big Data & Precision Agriculture	Drones & Satellite Imagery Remote Sensors Smart Equipment Data Analytics & Decision Support Technologies Integrated Hardware & Software Solutions
Farm Management & Information Services	Farm Management Software Market Data & Benchmarking Tools Mobile Technologies Training & Education
Trading Platforms & Financing	Marketplaces Innovative Lending
Supply Chain Technologies	Food & Ag Storage Food & Ag Logistics Active & Intelligent Packaging Food Traceability & Safety
Innovative Food Products & Services	Sustainable Proteins Functional Foods & Beverages Farm to Consumer Marketing Food E-Commerce
Bioenergy & Biomaterials	Biofuels Biomass Waste Mitigation Biomaterials

3.2 PRECISION AGRICULTURE: MEASURING SUCCESS

AN EXPLOSION OF PLATFORMS AND TECHNOLOGIES TO OPTIMIZE RESOURCES

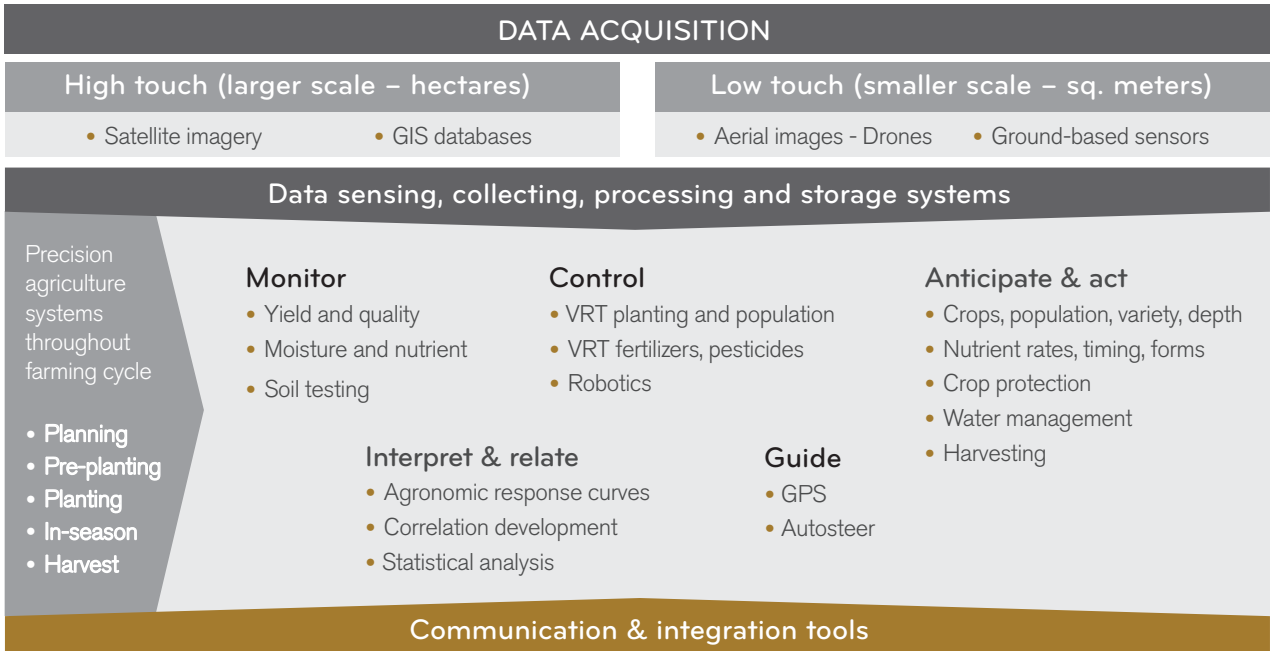
Traditional segments like seeds, crop nutrition and protection, and agricultural machinery are becoming increasingly integrated with novel technologies. This combination of innovations across the production spectrum are enabling the existence of "integrated farming systems". The application of big data analytics plays a central role in these comprehensive systems given that the fundamental value driver is information and the ability to collect it, analyze it and use it.

Investors have rushed to secure deals in this space, betting on the potential of precision agriculture ("precision ag" or just "PA") and big data in the agriculture industry. But what is exactly precision ag?

Precision agriculture encompasses farm and site-specific management systems to optimize inputs and outputs. These systems target different tasks such as guidance, control, monitoring, interpretation, decision support, and communication. To do so, these systems leverage a combination of different technologies, including high-resolution satellite imagery, drones, remote advanced sensors, auto steering and variable rate controls for inputs and artificial intelligence - all supported and enabled by mobile technologies and big data. Below is a simple illustration of the main components of precision ag, highlighting the key processes and outputs.

DIAGRAM 2:

Precision agriculture systems and big data.



Essentially, farmers use GPS, sensors, and big data analytics to better understand and adjust for spatial variability in their fields around characteristics such as soil composition, nutrient requirements, and moisture levels. Rather than treating the farm as a uniform block, the goal is to break it down into smaller plots, tailor the agronomical work to each plot accordingly, and gain real-time decision support as well as predictive capabilities.

This area-specific strategy enables farmers to improve yields and increase production and while strictly managing inputs. In this way, farmers can produce more while simultaneously conserving and protecting soil, water, and other natural resources.

Already farmers, seed and agricultural input companies, crop insurers, machinery manufacturers, all the way through to value-added processors and retailers are showing heightened interest in, use of, and investment in precision ag. However, farming is generally a conservative industry when it comes to adopting new technology, so convincing farmers worldwide to leverage these technologies will remain one of the main challenges to precision ag's global expansion.

4. WHO'S WHO IN THE FOOD & AGRICULTURE VENTURE CAPITAL SPACE

MORE INVESTORS JOIN THE AGTECH CROWD

If the world is to succeed in producing and delivering food for over 9 billion people in 2050, agricultural productivity will have to rise in a sustainable way. The public and private agricultural R&D that has boosted innovation in crop and livestock production and in food and beverage processing in previous decades will become even more critical going forward. Meanwhile additional challenges will emerge, or become more apparent, especially the impact of climate change and the necessity of conserving natural resources.

A dramatic shift in global innovation funding is happening, away from government-backed research and capital intensive sectors. In this context, private venture capital is likely to play a growing role in helping to develop and deliver technological innovations. Today, the global AgTech VC space is an ever expanding ecosystem made up of entrepreneurs, business accelerators, academics, VC funds, large corporations and their corporate ventures, as well as wide array of private investors. The chart below details the roles of these stakeholders:

Business accelerators

In recent years, a number of AgTech and FoodTech accelerators have emerged, mainly in North America and Europe, to provide a blend of capital, mentorship, and networking to technology-enabled startups, usually through time-bound programs.

These accelerators bring together a powerful community of entrepreneurs, mentors, and investors, complemented by strategic partnerships with local research and academic institutions, business associations, and investment funds. This ecosystem is usually centered around a local innovation or business hub; however, their geographical reach has been expanding and today many of them run international business programs.

The accelerators attract and invest in promising entrepreneurs that have innovative, cutting-edge, high growth, early-stage businesses and act as an early-stage investment platform for start-ups, providing functional and financial support to enable growth. Some of these accelerators include:

- Accelfoods (USA)
- The Yield lab (USA)
- Thrive Accelerator (USA)
- AgTech Accelerator (USA)
- Food System 6 (USA)
- Re-imagine food (Spain)
- Orizont (Spain)
- Nxtp.Labs Agrotech (Argentina)

We have also noted the emergence of syndicates, like Farm2050, a collective of diverse partners representing the complete ecosystem that is committed to advancing the future of food through supporting AgTech entrepreneurs and startups.

Innovation Endeavors and Flextronics' Lab IX founded Farm2050 with top industry players – including AGCO, Trimble, DuPont, Google, United Technologies' Sensitech division, and 3D Robotics - on the belief that innovation and technology are critical to addressing the global food challenge. The collective aims to support technology start-ups focused on innovation in agriculture with seed capital, manufacturing facilities, testing equipment, and management mentorship.

VC funds

The last decade has seen the emergence of many early-stage venture capital firms that exclusively invest in entrepreneurs leading ventures in agriculture technology and food system innovation.

VC funds typically look to add value to AgTech companies in the early stages of development through a combination of investment, advice, and collaboration. As the AgTech VC space takes shape, we have identified the emergence of different types of funds in the market:

- Some established firms have been investing in the space for several years, including Avrio Capital in Canada, and Cultivian Sandbox and Finistere Ventures in the U.S.
- Funding is also increasingly coming from 1) new funds being formed that are specifically focused on investing in technology related to agriculture, and 2) other funds that have broader mandates in sectors spanning from life science, to energy, to HiTech and which are now targeting the AgTech space.
- So far, generalist VC funds have been cautious to enter this market – but there are some distinct cases of generalist VC firms such as Khosla Ventures and Kleiner Perkins that have been actively investing in the sector.

Corporate ventures

The agchem, seed, and fertilizer industries will certainly be disrupted by the AgTech revolution. Already facing challenges to their traditional businesses, large corporations are looking for new ways to organize and reposition themselves. In the last few months Monsanto staged a failed takeover bid for Syngenta (who later agreed to a merger with ChemChina) and two of the largest companies in the space, Dow Chemical and DuPont, are pursuing a merger that will subsequently result in the spinoff of a pure-play agriculture company.

In order to take part in this innovation wave, large ag corporations are developing their own venture arms in order to collaborate with entrepreneurs and start-ups. In return, the chosen start-ups benefit from their vast resources including brand equity, market knowledge, technology and expertise, strategic relationships, and global resources.

Among the companies with active corporate venturing units (often called "corporate venture capital") that are investing in food and agriculture related start-ups, the following are particularly prominent:

- Monsanto Growth Ventures
- Syngenta Ventures
- Dow Venture Capital
- DuPont Ventures
- General Mills Ventures
- Maumee Ventures (The Andersons)
- Tate and Lyle Venturing
- Campbell Ventures
- DSM Venturing (Royal DSM)
- GE Ventures
- Intel Capital
- BASF Venture Capital
- Distill Ventures (Diageo)
- Constellation Ventures

Impact investors

- The agriculture sector is uniquely positioned to deliver technological innovations that can address global challenges related to poverty and hunger alleviation as well as rural development.
- Impact investors are increasingly turning to AgTech, as they recognize that the application of AgTech solutions in developing markets may enhance the lives of individuals and local communities, creating long-standing positive social and environmental impact. There is also a social dimension in the FoodTech space, as sustainable sourcing and processing of ingredients can create positive social impact.
- It is important to consider that the path from new technology R&D in a tech hub to implementation in a developing country is long and uncertain. We embrace impact investing and are glad to support these unique investors in designing and implementing effective strategies that address agricultural development.

Marketplaces and industry platforms

- **The AgTech investment space remains pretty fragmented, which exacerbates the challenges entrepreneurs face when attempting to raise funds as well as those that investors confront when trying deploy capital toward the soundest opportunities and most promising management.**
- To facilitate this connection and to bring further visibility to the market, several online investment marketplaces have emerged. AgFunder.com, one of the best positioned marketplaces, enables accredited investors to invest directly in AgTech companies.
- There are also a number of co-investment platforms and other private investment clubs that deal exclusively with agricultural investments.

5. THE SOUTH AMERICAN AGTECH OPPORTUNITY

THE REGION IS PRIMED FOR THE GROWTH THAT AGTECH CAN BRING

We have identified over 170 VC firms which are either exclusively investing, or have expressed special interest, in the AgTech space, with their geographical focus mainly concentrated across North America and more recently in Europe. As the AgTech market grows in developed countries, a clear path emerges for companies and investors to expand their scope to new markets. In our opinion there is a compelling case for South America that points to the region as the immediate opportunity.

The importance of South America to global agriculture cannot be overstated. The region's unique geographical profile makes it a major supplier of an unusually wide range of agricultural products, from grains to animal proteins and from vegetables to specialty fruits.

Many of the countries in the region depend on agriculture to generate a significant portion of their GDP, exports, jobs and fiscal revenues. This is true not only of the usual suspects such as Brazil and Argentina, who besides the US are the world's top corn and soy exporters, but also for smaller countries like Uruguay, Colombia, and Peru who supply beef, coffee, and fish, among other products, to the world.

DIAGRAM 3:

Superpower nations in agriculture.

	USA	SOUTH AMERICA
Arable area (2013)	152 Million Has	138 Million Has
Permanent crop area (2012)	2.6 Million Has	4.1 Million Has
Soybean production (14/15)	107 Million Metric Tons	168 Million Metric Tons
Corn production (14/15)	361 Million Metric Tons	127 Million Metric Tons
Cattle stock (2013)	89 Million Heads	354 Million Heads
Chicken stock (2013)	1917 Million Heads	2236 Million Heads

Source: FAO, World Bank, USDA. South America includes Argentina, Bolivia, Brazil, Chile, Colombia, Ecuador, Paraguay, Peru, Uruguay and Venezuela.

But what really sets South America apart as we look toward the future is its natural resource wealth and opportunity for productivity improvement. Recent droughts in several producing regions across the world and sky high land prices have reminded us that not all agricultural land is created equal. Although there is a lot of variability throughout the continent, South America is one of the only regions in the world that has sufficient fresh water and tracts of available land that can be converted to agriculture, or at least made more productive.

A difference in management styles combined, in some cases, with a lack of investment have resulted in lower yields across the region. For example, whereas corn producers across the US enjoy an average yield of over 10.7 metric tons per hectare, the average yields in Argentina and Brazil are 24% and 50% lower at 8.2 metric tons per hectare and 5.4 metric tons per hectare, respectively (USDA). We believe that by implementing various technologies that have emerged as part of the AgTech revolution, meaningfully higher yields can be achieved without causing undue damage to the environment.

Despite all its agricultural attributes, the region also has its idiosyncrasies, giving it a unique risk profile that is critical for investors to fully understand before deciding to move forward with any projects. Specifically, it is important for investors coming from other regions to achieve a strong understanding of the regional dynamics that may differ from what they are familiar with.

Here we have outlined some of the key considerations that are particularly important for investors, especially those new to the region, to understand. However, this list is not exhaustive and we encourage you to get in touch if you are considering investing in the region.

DIMENSIONS	GENERAL CONSIDERATIONS
Geographic dispersion	Multiple and varied production areas across large land extensions of arable soil, often separated by geographic barriers.
Weather conditions	Wide latitude and altitude range across the region resulting in a high variety of weather patterns. Weather systems in the region are also influenced by El Niño and La Niña (ENSO).
Core agriculture products	Wide assortment of agricultural products, including many that are specifically relevant to regional economies.
Technological packages	Multiple agronomic environments require specific sets of technological packages. Only in some cases are these fully tailored to local conditions.
Logistics & infrastructure	Good logistics tend to be limited to areas close to regional processing and export hubs. Further away, in-land roads, river and railway systems are generally poor or non-existent. This factor needs to be considered in business models.
IT connectivity	Wireless connectivity in the countryside is expanding but generally limited and quality varies considerably. Availability of electric grid varies based on region.
Extent of digitalization	Digitalization across the regional agriculture sector is generally in an early stage. Data availability is limited and sparse, but improving steadily.
Market transparency	Relevant markets exist only for key crops in selected countries. Less liquidity and depth means price distortions are more common. Price discovery mechanisms are often weak and there is limited hedging and insurance options available.
Rule of law	Rule of law varies greatly according to country, usually increasing transactional costs.
Intellectual property rights	Intellectual Property (IP) policy in South America differs from other regions and IP rights also differ substantially by country, thus requiring an in-depth review of the national laws.
Corporate governance	The regional VC industry is gradually adopting governance structures similar to those in North America. In particular the use of convertible bonds to raise funds and stock options for management compensation will be important tools to demonstrate credibility to foreign investors.
Cost of capital	Cost of capital is usually high, reflecting the perceived higher risk across the region, however there is a wide range depending on the specific country.
Labor availability	There is a large workforce dedicated to the broad food and agriculture value chain across the region, however the labor market in each country has its own dynamics and challenges. The talent pool for technological innovations and business management is a strong point across the region, with entrepreneurial ecosystems continuously expanding.

Drivers of agriculture technology and food system innovations are largely the same!

Despite its unique challenges, the fundamental drivers for the adoption of AgTech innovations in the food and agriculture markets of South America are largely the same as those faced by their more developed counterparts. Namely, these markets are being pressured to optimize the inputs and outputs in sustainable ways while facing the impact of climate change and constraints on natural resources.

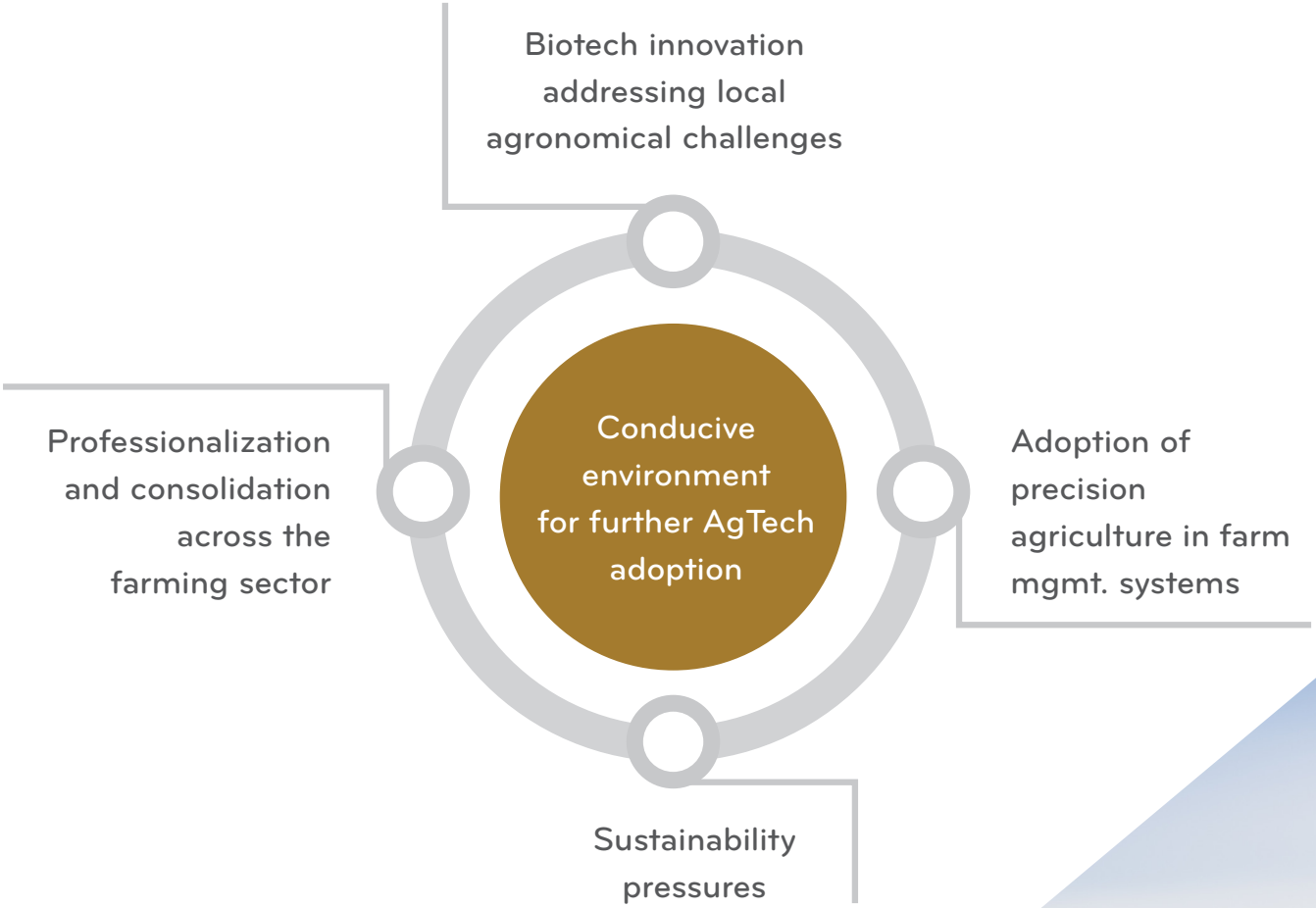
Furthermore, it could be argued that the need to bring AgTech innovations to South America is even greater when we consider the large yield gap across countries and major agricultural products, as well as the social and environmental challenges that the region faces.

5.1 AGTECH ADOPTION IN SOUTH AMERICA: CONTEXT & CHALLENGES

AgTech is not a new concept for many South American farmers and other stakeholders in the agricultural value chain but until recently a variety of factors prevented the widespread adoption of these technologies. However, following the industry's massive transformation that began in the early 2000s, a series of developments have primed the region for the rapid rise of AgTech innovations. Today, South America is home to a large and established agribusiness market in which these new developments can take root. In particular, the four key drivers illustrated below have led to the emergence of South America as an AgTech friendly environment:

DIAGRAM 4:

Regional agricultural context for AgTech adoption.



Credit: Luciano Queiroz/ Shutterstock.com

The emergence of these factors not only explains the current opportunity for AgTech adoption in the region, but more importantly, they also give clues about the opportunities that lay ahead:

Professionalization and consolidation across the farming sector	• Since the early 2000s there has been a paradigm shift in the regional farming sector, with a wave of consolidation that also ushered in much needed professionalization. • Improved farm economics, driven by strong demand from emerging markets, paved the way for the emergence of new farming companies that embraced new technologies as well as innovative business models. • Despite the current low farm income environment, the sector has shown resilience and a willingness to continuously improve its farm management systems.
Adoption of precision agriculture as a core component of the farm management system	• The adoption of new technologies was first a way to improve yields and profits per hectare. The downward trend of agricultural commodities in recent years has seen new technologies being gradually leveraged in an attempt to alleviate financial pressure by reducing costs and protecting margins. • The success of precision agriculture in both cases has led the wave of AgTech developments in the region. The possibility of applying a wide range of other tools to achieve similar results at large scale has incentivized the regional farming sector to experiment with other technologies.
Local agronomical challenges addressed by biotech innovation	• The agronomical challenges related to local pests and diseases as well as soil conditions and water limitations have been a catalyst to the development of tailored biotech solutions, meeting the needs of farmers across the region. • The regional biotech industry, particularly in Argentina and Brazil, is beginning to deliver technological breakthroughs thanks to an emerging ecosystem of research start-ups clustering around academic institutions and industry bodies, usually including farmer participation.
Sustainability pressures	• The whole food and agricultural value chain is likely to face increasing environmental costs in the future, arising from climate change and local government initiatives. • In response, an increasing number of companies in Latin America are investing in climate-smart agricultural practices, an area in which AgTech can contribute significantly.

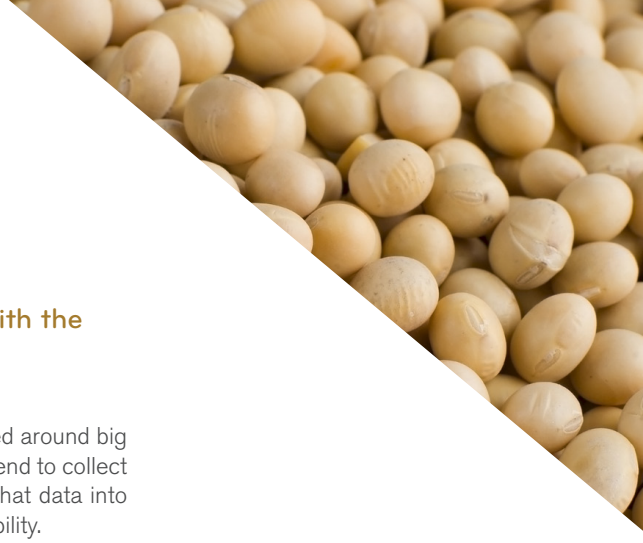
DIFFERENT GEOGRAPHIES, SAME CHALLENGES FOR AGTECH ADOPTION

When we speak with local AgTech entrepreneurs, the initial discussion about the massive opportunities that exist all along the food and agriculture value chain inevitably turns to the myriad of challenges the entrepreneurs have had to confront as they launch new developments and market their innovations to local farmers.

During these conversations, it becomes evident that the challenges faced by South American AgTech companies are largely similar to those faced by their counterparts in the developed markets of North America and Europe. This likeness can be a huge advantage for local AgTech entrepreneurs, who can learn from the past experiences of similar start-ups in the U.S. and European markets. The main challenges center around four core areas:

1. How can AgTech start-ups gain traction in this emerging space?

• Many young AgTech companies in the region lack the required resources to speed up their R&D and business development.
Partnering with farmer organizations and large agribusinesses while engaging with local and regional tech ecosystems can help to attract interest and resources, both financial and non-financial, while giving the entrepreneur access to critical feedback and guidance. Having a physical presence, either permanent or periodical, in one of the various AgTech hubs across the U.S. can help to facilitate traction.



2. How can AgTech applications and platforms be built with the potential to make a meaningful difference to farmers' profitability and sustainability

• The suite of AgTech innovations in the U.S. is overwhelming. Centered around big data, we notice a crowded market of applications and platforms that intend to collect and analyze data. But what's really important is knowing how to turn that data into useful information that can drive decision making and improved profitability.
• In a similar fashion, the wider range of other AgTech innovations promise to revolutionize the farm, but the impact on the farmers' bottom line needs to be evident. Data privacy concerns need to be dealt with in a transparent way.
• The South American AgTech space is in a much earlier stage of development, with few companies already in the market. However, the question of how a technology can deliver concrete value to the food and agriculture industry is very significant, just as it has proven to be in the U.S.

Experience shows that the critical first step is to have a clearly defined market and communicate a simple and effective value proposition.

3. How should the commercial distribution network of these AgTech innovations be built? How can they get in front of farmers and how can they be monetized?

• Even with a very promising technology, one of the main hurdles for AgTech companies is the commercial distribution of their innovations. Agriculture stakeholders, and farmers in particular, may not be willing to buy or contract these technologies.
• One important challenge in the region is to design technologies suitable for small/mid-sized/diverse farms, which make up the majority of the farming sector.
• To further complicate things, the current cycle of lower farm income is expected to extend over the next few years, potentially delaying AgTech adoption.

To overcome this challenge, it is worth working on the design of effective business models, pursuing partnerships, and proactively reshaping the marketplace.

4. 4. Where will AgTech value creation come from? Where will the exits materialize for VC investors?

• VC investors have been increasingly allocating capital to the AgTech space in North America and Europe. However, with few exceptions, the exit path for AgTech companies is yet to be explored and proven.
• Focusing in on South America, this challenge becomes more acute, as there is less liquidity for private equity transactions.
• Companies may need to become regional to gain scale, however the critical scale of each venture depends on the type of issues that the technology intends to solve and the country of operation.

Though some exit questions persist, the existence of a large, established agribusiness market means that these new AgTech developments should have healthy demand. Argentina and Brazil, in particular, have large domestic agribusiness industries with enough scale to sustain local companies.

Finding solutions to these challenges is part of the path to building a business. We believe that the new generation of farmers, young people in their 20s and early 30s who take the lead on family-owned farms and agribusinesses, will be particularly willing to experiment with new technologies and incorporate them in their fields and operations. In our view, this generation will open the gates to increased AgTech adoption across the region.

5.2 PROFILED SOUTH AMERICAN AGTECH COMPANIES

AGTECH COMPANIES REVIEWED

Our mapping of the regional AgTech space includes more than 60 companies, concentrated in Argentina, Brazil and Chile, with a wide array of technologies and services provided and in a broad range of developmental stage.

CHART 3:
Profiled companies by initial country of operations

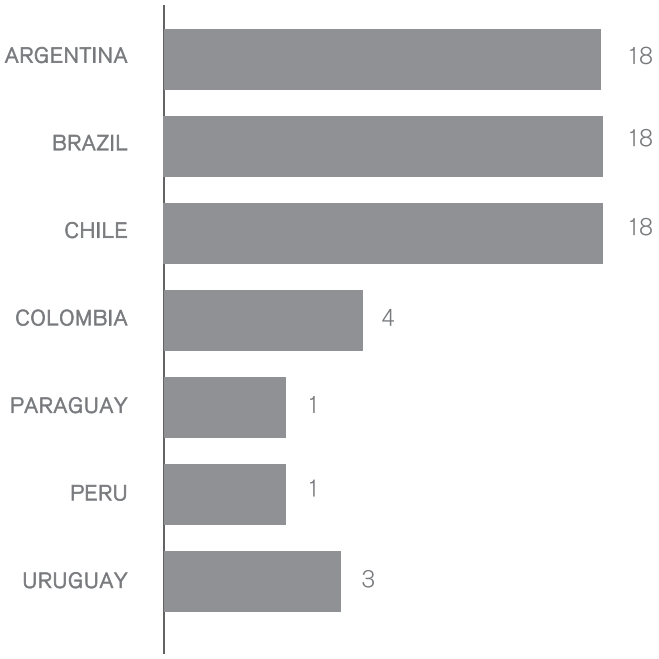
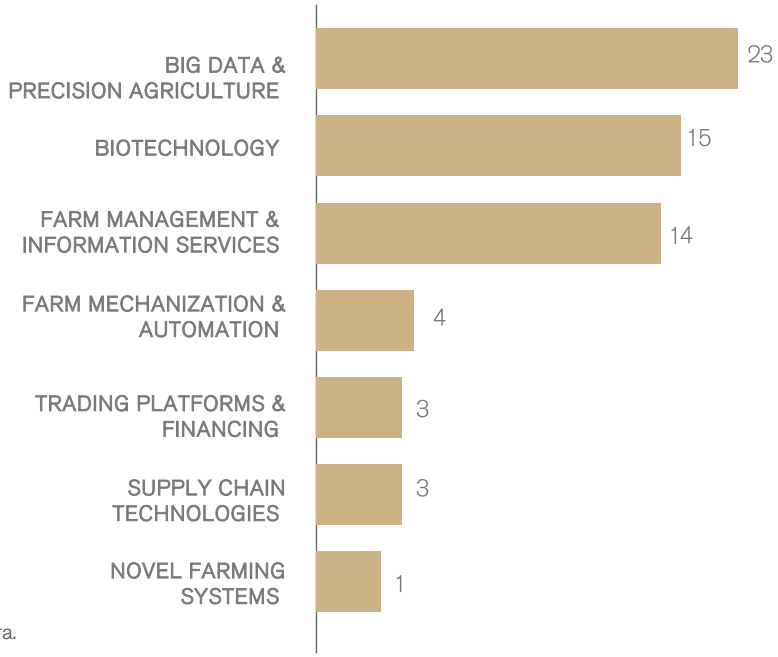


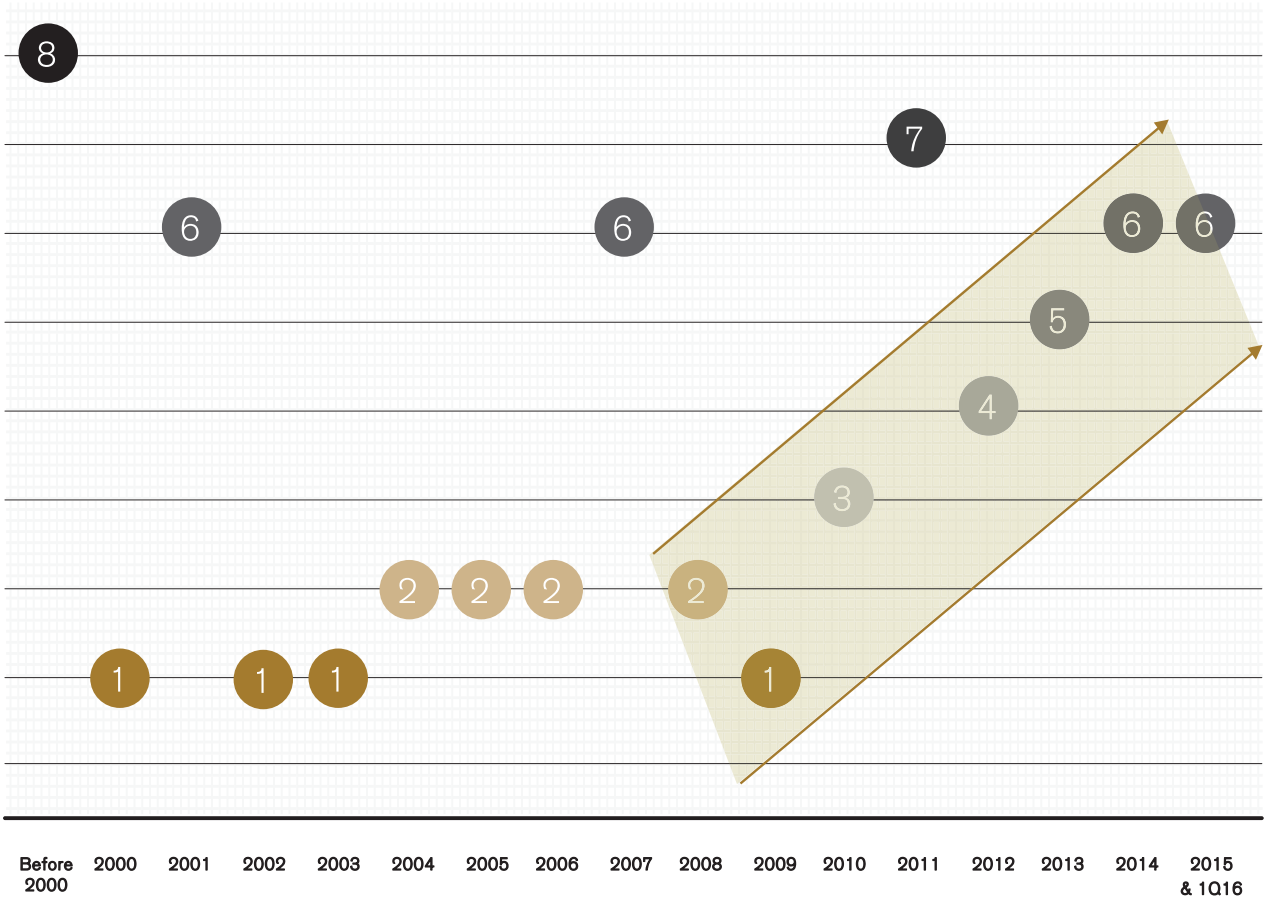
CHART 4:
Profiled companies by relevant AgTech sub-sector



Source: Mapping by Valoral Advisors & Quarterra.

CHART 5:

Profiled companies by start-up year



Source: Mapping by Valoral Advisors & Quarterra.

Below is the list of all the screened companies in this study. This business pool includes a wide range of firms in different development stages and with different technological innovations. While the list is not exhaustive, it is intended to illustrate both the general AgTech landscape in the region as well as the key players.

Credit: blackzheep/Shutterstock.com

COMPANY	HEADQUARTERS	AGTECH SECTOR	SUB-SECTOR
Agroads	Argentina	Trading Platforms & Financing	Marketplaces
Agrofy	Argentina	Trading Platforms & Financing	Marketplaces
Bioceres	Argentina	Biotechnology	Plant Genetics
Booster AgTech	Argentina	Farm Management & Information Services	Farm Management Software
DTA Latam	Argentina	Trading Platforms and Financing	Innovative Lending
Eland	Argentina	Farm Management & Information Services	Farm Management Software
Finnegans - Ceres Agro	Argentina	Farm Management & Information Services	Farm Management Software
Frontec	Argentina	Big Data & Precision Agriculture	Data Analytics & Decision Support Technologies
GeoAgris	Argentina	Big Data & Precision Agriculture	Data Analytics & Decision Support Technologies
GeoAgro	Argentina	Big Data & Precision Agriculture	Data Analytics & Decision Support Technologies
Kilimo	Argentina	Farm Mechanization & Automation	Water & Irrigation Systems
King Agro	Argentina	Farm Mechanization & Automation	Innovative Materials & Applications
LESS Industries	Argentina	Farm Mechanization & Automation	Innovative Materials & Applications
NeoGram	Argentina	Biotechnology	Plant Genetics
S4	Argentina	Big Data & Precision Agriculture	Data Analytics & Decision Support Technologies
Sismagro	Argentina	Farm Management & Information Services	Farm Management Software
Tambero.com	Argentina	Farm Management & Information Services	Mobile Technologies
Verion Agricultura	Argentina	Big Data & Precision Agriculture	Smart Equipment
Agroinova	Brazil	Farm Management & Information Services	Farm Management Software
AgroPrecision	Brazil	Big Data & Precision Agriculture	Data Analytics & Decision Support Technologies
Alitecno	Brazil	Novel Farming Systems	Aquaculture Systems & Technologies
Bio Controle	Brazil	Biotechnology	Biologicals
BovControl	Brazil	Big Data & Precision Agriculture	Data Analytics & Decision Support Technologies
BR3 Agrotecnologia	Brazil	Biotechnology	Biologicals
BUG Agentes Biologicos	Brazil	Biotechnology	Biologicals
ENALTA	Brazil	Big Data & Precision Agriculture	Integrated Hardware & Software Solutions
Falker	Brazil	Big Data & Precision Agriculture	Integrated Hardware & Software Solutions
Geociclo	Brazil	Biotechnology	Fertilizers
HortiAgro	Brazil	Biotechnology	Plant Genetics
IMEVE	Brazil	Biotechnology	Animal Nutrition & Health
Inprenha	Brazil	Biotechnology	Animal Nutrition & Health
PROMIP	Brazil	Biotechnology	Biologicals
Safe Trace	Brazil	Supply Chain Technologies	Food Safety & Traceability
Sontra	Brazil	Supply Chain Technologies	Food & Ag Logistics
Strider	Brazil	Big Data & Precision Agriculture	Integrated Hardware & Software Solutions
Xmbots	Brazil	Big Data & Precision Agriculture	Drones & Satellite Imagery
Agribots	Chile	Farm Management & Information Services	Market Data & Benchmarking Tools
Agriversity	Chile	Farm Management & Information Services	Training & Education
Agronometrics	Chile	Farm Management & Information Services	Market Data & Benchmarking Tools
AgroPrecisión	Chile	Big Data & Precision Agriculture	Drones & Satellite Imagery
AgroPrime	Chile	Farm Management & Information Services	Farm Management Software
Agroreports	Chile	Farm Management & Information Services	Market Data & Benchmarking Tools
Agrosat	Chile	Big Data & Precision Agriculture	Drones & Satellite Imagery
Avance Biotecnologies	Chile	Biotechnology	Biologicals - Biostimulants & Biopesticides
BioInsumos Nativa	Chile	Biotechnology	Biologicals - Biostimulants & Biopesticides
Biogram	Chile	Biotechnology	Biologicals - Biostimulants & Biopesticides
BioPacific	Chile	Biotechnology	Biologicals - Biostimulants & Biopesticides
Crop Monitor	Chile	Big Data & Precision Agriculture	Data Analytics & Decision Support Technologies
LemSystem	Chile	Big Data & Precision Agriculture	Remote Sensors
NEOAG	Chile	Big Data & Precision Agriculture	Integrated Hardware & Software Solutions
Phage Technologies S.A.	Chile	BioTechnology	Animal Nutrition & Health
Reset Technologies	Chile	Farm Management & Information Services	Farm Management Software
UAV-IQ	Chile	Big Data & Precision Agriculture	Drones & Satellite Imagery
WiseConn	Chile	Farm mechanization & automation	Water & Irrigation Systems
Farmapp	Colombia	Farm Management & Information Services	Mobile Technologies
Lifepack	Colombia	Supply Chain Technologies	Active & Intelligent Packaging
Simple Agri	Colombia	Farm Management & Information Services	Farm Management Software
Sioma	Colombia	Big Data & Precision Agriculture	Remote Sensors
Sustentap	Paraguay	Big Data & Precision Agriculture	Data Analytics & Decision Support Technologies
RITEC	Peru	Big Data & Precision Agriculture	Data Analytics & Decision Support Technologies
Agronóstico	Uruguay	Big Data & Precision Agriculture	Data Analytics & Decision Support Technologies
IEETech	Uruguay	Big Data & Precision Agriculture	Smart Equipment
OKARATech	Uruguay	Big Data & Precision Agriculture	Data Analytics & Decision Support Technologies

5.3 MAKING THE CASE: EARLY ACTIVITY IN SOUTH AMERICAN AGTECH

Already we have begun to see the emergence of significant AgTech activity in the region. Mentioned below are just a few cases that demonstrate the potential of South American AgTech start-ups.

Bioceres, an Argentinian biotech Co., looks for IPO in the U.S. public market

Bioceres, an Argentinian developer of crop productivity traits for genetically modified seeds, back in September 2015 filed with the SEC to raise up to $81 million in an initial public offering.

The Agricultural Biotech Co., founded in 2002, has developed a unique pipeline of agricultural technologies and products focused on enhancing yields for several core global crops. The company has a US-based joint venture with Arcadia Biosciences to develop soybean varieties with next-generation agricultural technologies.

S4 Grows from Argentine Roots to Become Global Player

After being founded in Argentina in 2010 as one of the cutting edge players in big data, S4 has grown to include an office in the United States with the support from the Yield Lab, as part of a larger international expansion plan.

S4 develops predictive models by combining geolocalized information about crops' biological processes with information from multiple remote sensors, in order to assist decision-making for insurers, commercial lenders, and input suppliers. The company continues to innovate, having announced in early 2016 a partnership with Buenos Aires based ROFEX to produce a weather based index that will give agricultural stakeholders a new way to manage their climate and weather related risks.

Frontec Formed by Large Corporates Recognizing the Opportunity for Innovation

Frontec is a joint venture between Argentine farming company, Los Grobo, and Invap to address the opportunity for more precise agronomic management. Frontec combines the strengths of both parent companies to offer sophisticated aerospace technologies that can inform farmer decision making. By using the satellite data provided by the Frontec suite, farmers can more precisely manage their land. Furthermore, the technology enables mobile monitoring and satellite imagery.

Leading Precision Agriculture Firm, Farmers Edge, Selects Brazil for International Expansion

Originally founded in Canada, Farmers Edge has grown to be one of the most successful companies in the precision agriculture space. Following local success, they began a process of international expansion. After organizing themselves in the United States, Australia, and Russia, the firm has more recently set its sights on Brazil.

Having operated successfully in Brazil for two years, in early 2016 the company announced the establishment of a regional headquarters in Campinas, Sao Paulo and appointed a former Monsanto executive to manage operations in Brazil. This move indicates that Farmers Edge sees the regional potential and is willing to make a substantial investment in personnel and resources to capitalize on the opportunity.

In 2014 Hexagon, a Sweden-based provider of visualization technologies, acquired Brazilian companies Arvus Tecnología and iLab Sistemas as the foundation for the launch of Hexagon Agriculture

Arvus Tecnología manufactures electronic sensing modules and automation systems for agricultural machinery. iLab Sistemas develops business management software for the agricultural sector.

In addition to these specific developments, we are seeing increased activity of local start-up organizations, such as Start-Up Brasil, Start-Up Chile, and STARTUP PERU. There are also new business incubators specialized in agribusiness ventures, for example IncUBAgro, the agribusiness incubator launched by the agronomy faculty of the University of Buenos Aires, and AgTech Chile, an open platform for the sector. Generalist accelerators and seed funds focused on the region, such as Nxtp Labs and Agora Partnerships, are also looking to the sector with increased interest.

There are also a growing number of research centers, such as The Brazilian Agricultural Research Corporation ("EMBRAPA"), a state-owned research organization affiliated with the Brazilian Ministry of Agriculture that is devoted to developing technologies, knowledge, and technical-scientific information aimed at the Brazilian agriculture and livestock sectors.

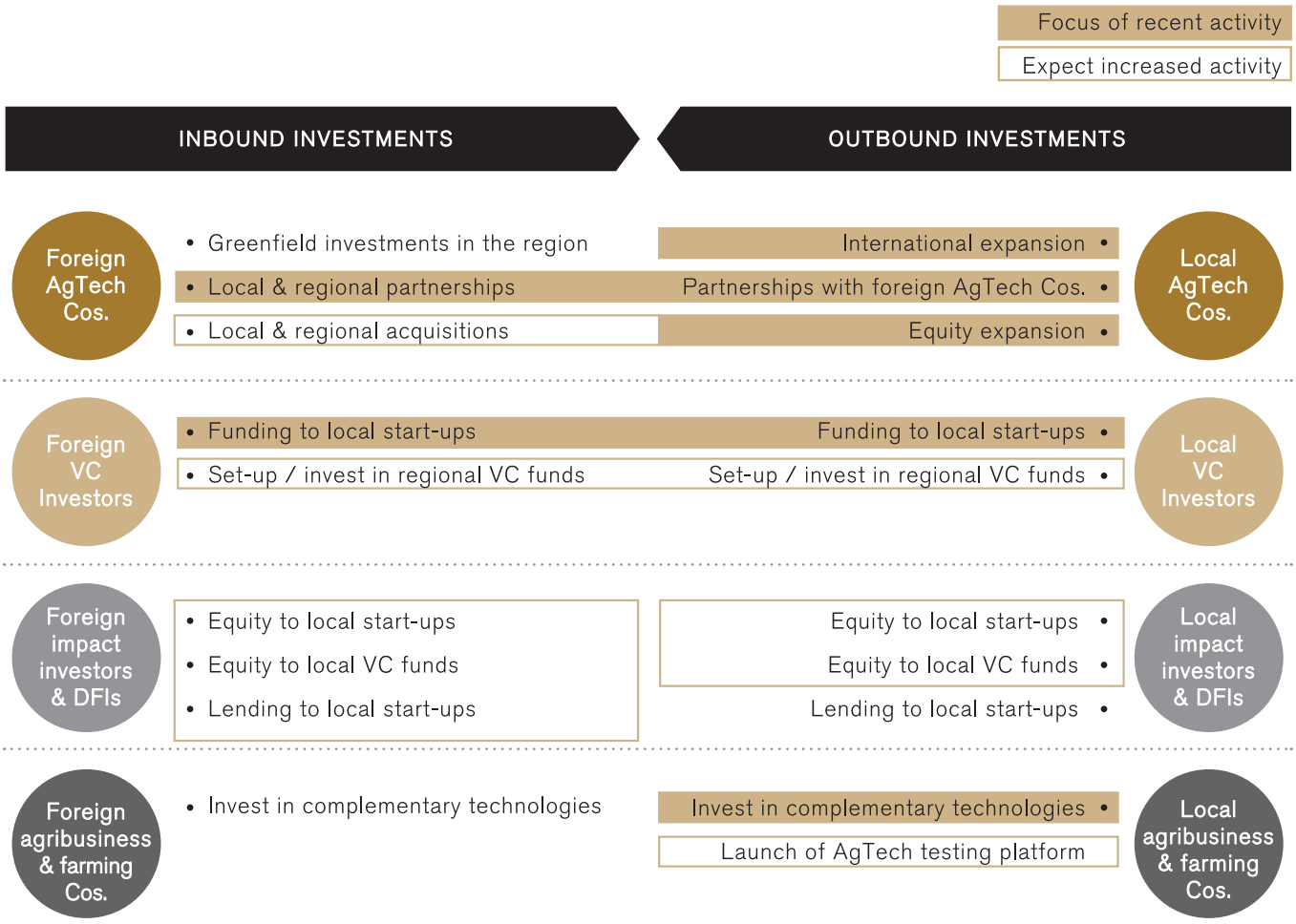
6. OPPORTUNITIES AHEAD

Despite the many advancements made in South America's AgTech space, it is clear that tremendous opportunity still lies ahead for the sector. In general, the companies that we have reviewed, including those profiled in this paper, have sprung up individually from an organic need to leverage available technologies to improve agricultural production. Furthermore, few of these companies have benefited from the start-up culture and accelerator infrastructure that we see in more mature geographies.

If we are able to unite the creative resilience of South American AgTech start-ups with the expertise and resources of their more developed counterparts, the potential is truly limitless. The diagram below illustrates the main inbound and outbound investment avenues through which interested parties can participate in the growth of the regional AgTech sector:

DIAGRAM 5:

Investment avenues to the South American AgTech space.



One of the most active areas is the inbound and outbound investments by AgTech companies themselves. This strategy may apply to either those in the region who have an innovative technology to roll out in other markets, or to those start-up companies from abroad – usually portfolio companies of VC funds - who are interested in expanding their geographical reach. Many of the technologies already being used across North America and Europe may be applied to South America, with or without tweaks. However, accurately assessing these opportunities and launching a local platform requires a refined understanding of the individual markets' attractiveness, idiosyncrasies, challenges and risks.

To gain this understanding, foreign AgTech companies may opt to develop partnerships with local players, that can give them a head start on increasing their footprint and accelerate the adoption of their technology. These partnerships can be highly advantageous to penetrating the regional market, as they can provide local agronomical expertise and access to the local agricultural network. These connections result in insights which are fundamental to tailoring the technological offering and for launching effective marketing plans.

It may be too early yet for foreign AgTech companies to break into the South American market through acquisitions, but anecdotal evidence collected through our network points to this possibility in the future. Many U.S. based AgTech companies are planning their strategic international expansion and South America is the recurring top, raising questions of how to best approach the regional market. On the other hand, outbound investments are increasingly prevalent as local AgTech companies plan to enter other markets, notably the U.S., and as they look for long term capital to fund operational expansion.

Another way to take advantage of this rapidly growing segment is through the facilitation of capital. One of the missing keys to expansion for South American AgTech start-ups has traditionally been access to capital. We believe that those VC investors and VC funds who find the region's fundamentals compelling and are willing to invest in young AgTech companies will find themselves with a powerful early mover advantage.

VC investors may be either local or foreign, working individually or through a regional fund. In our experience each investor has a unique risk profile and preference for certain sub-sectors. As such, one must understand how their profile combines with each available investment opportunity. We believe that in the near future a number of regional AgTech VC funds will emerge to facilitate private capital deployment in South America. Furthermore, open innovation partnerships could be launched in the region with support from local and international agribusiness companies. The successful development of Israel's AgTech industry can serve as an example to the South American agriculture community.

Impact investors and Development Finance Institutions ("DFIs") are also expected to become a relevant source of capital for local AgTech start-ups. Their involvement may be the catalyst to promoting the positive developmental and environmental impact of AgTech across the region. There is a growing recognition that funding AgTech innovations can provide positive impact, which is driving the interest from these investors. We also note that this type of investor can typically provide capital not only as equity, but also as structured debt, thus providing more flexibility to the capital structure of young start-ups.

One particularly prominent example is the work of the Bill and Melinda Gates' Foundation in Africa. Focusing in on Latin America, the Multilateral Investment Fund ("MIF") – part of the InterAmerican Development Bank – manages different initiatives centered around climate smart agriculture. These projects support the development and introduction of technologies and agricultural practices that mitigate the impact of climate change in the regional agriculture sector and the relevant local communities. The MIF also supports initiatives which leverage the value of, without diminishing, natural capital particularly in areas where biodiversity is under threat.

Last but not least, traditional agribusiness and farming companies around the world are also joining the investment spree in AgTech. In South America, these companies are increasingly willing to invest in AgTech start-ups as a complementary component of their business models. This is particularly evident in the case of medium and large farming groups, who can combine their agricultural expertise and scale with novel technologies to improve the productivity of their land and to create value by launching new business ventures. Service providers in the agriculture infrastructure sector are also expanding their services into precision agriculture and achieving higher integration in the value chain.

SIX OPPORTUNITY THEMES FOR THE REGIONAL FOOD AND AGRICULTURAL AGTECH SPACE

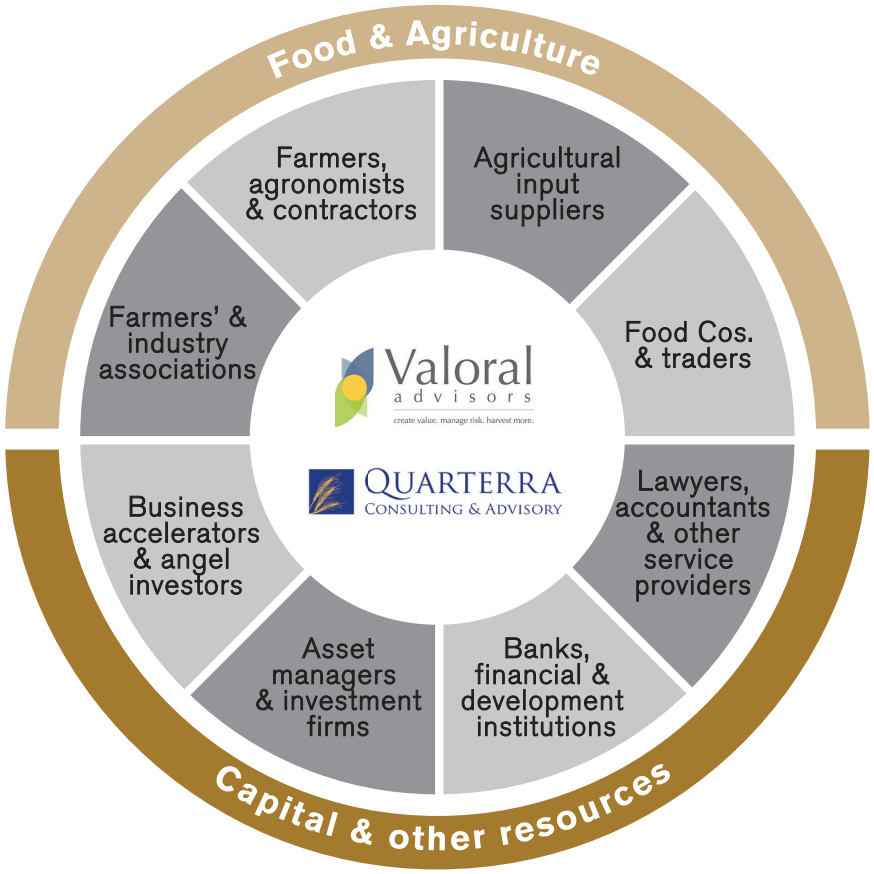
Sustainably improving crop yields	• **Focus on productivity, sustainability, and profitability will increasingly drive the adoption of precision agriculture solutions that combine technologies and agronomic support to the diverse growing areas across South America.** • **Irrigation analytics platforms** are well suited to the diverse growing areas which cultivate high value, permanent crops with irrigation. • **Agricultural genomics**, focused on adapting row and permanent crops to local conditions, is one of the areas with the largest potential going forward, especially as there is growing incidence of pests' and diseases' resistance to current technology. • **Agricultural biologicals** are gradually penetrating the region, where the potential for crop enhancement products is massive.
Leveraging technology to supply the global animal protein demand	• **With a cattle herd similar in size to that of the human population, cattle farming presents a compelling opportunity for AgTech innovation in South America.** The opportunity exists not only in tracking cattle from calf birth to the retail store, but also in animal nutrition and health. • Precision ag in the region has been traditionally dominated by the cropping sector, but livestock producers could also turn to precision technologies to improve productivity and profitability of their herd. • **Improvements in pastures and in animal feed** are attractive opportunities, given the scale of production and the gaps across the region, notably in sub-tropical and tropical environments. • **Development of animal feed probiotics to replace antibiotics** used in cattle and poultry production represents a growth opportunity as consumers and regulators increase pressure to reduce antibiotic use in the meat supply chain.
Developing risk management solutions & enabling market transparency	• **A prime example of AgTech meeting FinTech is the agricultural insurance market.** • Farmers must grow more with less at a time when climate change fuels uncertainty in an already risky business. Looming resource constraints and extreme weather events, like droughts and floods, mean more risk for both South American farmers and their global counterparts. • A new wave of AgTech companies are developing predictive models by combining geolocalized information about crops' biological processes with information from multiple remote sensors, in order to assist decision-making for insurers, commercial lenders, and input suppliers. • **More opportunities lay ahead for improved marketplaces for selected inputs and niche crops as well as innovations in agri lending, among others.**
Tracing food & tackling food waste	• **One of the most pressing sustainability issues in the food industry is waste.** According to FAO up to a third of food for human consumption is lost or wasted in the supply chain. • South America is no exception. Food losses represent a frivolous use of production resources, such as agricultural land, water, energy, and inputs, with important social, economic, and environmental implications. • We expect a new wave of innovation targeted at reducing food losses in the regional supply chain, as well as food waste at the consumer level. • This may involve making distribution and storage systems more efficient and improving the role of packaging in waste reduction.
Producing & delivering better food to more conscious consumers	• **Globalization is particularly evident in the food market, with consumers around the world expressing their preferences for healthy, nutritious, and convenient food.** • Major manufacturers and investment firms, both private equity and venture capital, are showing interest in functional foods and beverages companies. The large and growing middle class in South America will likely attract more innovation and investment to this space.
Pursuing green business models & rethinking natural capital	• **Climate change and increased sustainability pressures from governments and consumers will be major catalysts in driving the application of climate-smart agriculture practices and technologies across the region.** • We foresee opportunities for companies to reduce the net environmental footprint of agriculture in livestock and crop production, especially related to biomass energy, among other technologies. • More broadly, we expect a growing realization by investors about the relevance of the natural capital that sustains the food and agriculture sector. There are alternative ways to convert that natural capital into sustainable revenue streams, including regenerative agriculture, holistic production models, BioTourism and GHG offset credits.

7. OUR EDGE, FOR YOUR BUSINESS SUCCESS

Valoral and Quarterra are experienced in providing an array of professional advisory and consulting services tailored specifically to the South American food and agriculture industry. We have experience in the regional venture capital and start-up scene, and can work with investment firms, start-ups, and large corporations to help develop successful investments and operations in the regional AgTech sector.

DIAGRAM 6:

The power of our network.



For AgTech Companies

For start-ups and established AgTech companies looking to grow in the region, especially those from abroad, it is critical to thoroughly diagnose the competitive environment and understand how a firm's respective strengths and weaknesses may help or hinder their growth. To that end we can perform comprehensive market assessments to help our clients understand all aspects of their new geography – including competition, distribution, and regulatory requirements. We also work with our clients to formulate individualized market entry strategies that maximize the probability of success.

In some cases, the most effective route for these companies may be to form a partnership with a local player that can help them procure market access more rapidly. Let us support that strategy by connecting your firm with our extensive on-the-ground network to find the partnership that allows both companies to meet their shared goals in the most effective way possible.

For VC Funds and other investment firms

Investment managers have their own unique set of requirements. They need to understand how and where to invest locally. Valoral and Quarterra are well equipped to leverage their collective experience and local networks to define an investment strategy that is aligned with the investor's strategy. We can also help to develop a robust pipeline of investment opportunities while helping funds and other investment firms dig deeper on potential companies in order to build their portfolio in the region.

Our journey

Valoral and Quarterra are strong believers in the future of AgTech in South America. We believe that the fundamentals are clear and that those who make the first investments into the space will be rewarded for their efforts. More than just financial rewards, we believe that the introduction of these technologies will truly have a positive social, economic, and environmental impact on the region. We look forward to achieving these objectives together.

Please do not hesitate to get in touch so that we can get started.

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ANNEX – CORPORATE PROFILES OF SELECTED AGTECH COMPANIES

ARGENTINA

AGROADS

Founded 2007. Trading Platforms & Financing - Marketplaces

Agroads is an agriculture marketplace with operations in Argentina and Brazil. The web-based marketplace offers a wide array of agriculture inputs, machinery and services, as well as farmland.
http://www.agroads.com

AGROFY

Founded 2016. Trading Platforms & Financing - Marketplaces

Agrofy is a recently launched marketplace for the South American agriculture community, built on the back on Fyo.com, a large grain trading and agriculture information service company in Argentina.
http://www.agrofy.com

BIOCERES

Founded 2001. Biotechnology – Plant Genetics

Bioceres is a multifaceted biotechnology company based in Argentina. Though they emphasize seed breeding and genetics for improved yields, they also have an extensive enzyme businesses and market their proprietary research and development services. In September 2015 they announced an IPO and intention to be listed on the NYSE with the ticker BIOX.
http://www.bioceres.com.ar

BOOSTER AGTECH

Founded 2014. Farm Management & Information Services - Farm Management Software

Booster AgTech offers a suite of mobile applications aimed at democratizing small farm management across the globe. Their programs offer weather, crop management, and market data to help small farmers improve decision making.
http://www.boosterAgTech.com

DTA LATAM

Founded 2009. Trading Platforms & Financing – Innovative Lending

DTA (Desarollo en Trading & Agronegocios) Latam offers non-bank financial services for agricultural businesses throughout Latin America. Their services focus on 4 sectors: 1) Non-Banking Financing; 2) Assets Administration; 3) Project Management; and 4) Risk Management. DTA developed and manages Pago Rural, a cloud based credit and payment platform used by agribusinesses throughout Latin America.
http://www.dtalatam.com

ELAND

Founded 2013. Farm Management & Information Services - Farm Management Software

Eland is a cloud based farm management suite that allows producers to centralize and analyze information about their farms. The information can be accessed from anywhere, giving farmers greater and more consistent control over their operation.
http://www.eland.es

FINNEGANS – CERES AGRO

Founded 1992. Farm Management & Information Services - Farm Management Software

Finnegans has developed the Ceres Agro suite, a comprehensive, cloud-based software that offers an integrated management solution for farming companies.
http://www.finneg.com

FRONTEC

Founded 2015. Big Data & Precision Agriculture - Data Analytics & Decision Support Technologies

Frontec is a joint venture between Argentine companies INVAP and Los Grobo, who specialize in technology and agriculture, respectively. The company uses satellite monitoring combined with big data analytics to help improve farm efficiency.

http://www.frontec.net

GEOAGRIS

Founded 2003. Big Data & Precision Agriculture - Data Analytics & Decision Support Technologies

GeoAgris develops 'Geographic Information Technologies' which enable farmers to manage their land more precisely. The firm leverages satellite imagery and proprietary technologies to supply information to unique modules which help farmers make better informed decisions related to inputs and land management.

http://www.geoagris.com

GEOAGRO

Founded 2001. Big Data & Precision Agriculture - Data Analytics & Decision Support Technologies

GeoAgro provides farmers a series of technology-based tools that allow them to manage their farms in a more precise manner. Their products use GPS, GIS, and satellite imagery to enable precision farm management, improving efficiency and sustainability.

http://site.geoagro.com

KILIMO

Founded 2014. Farm Mechanization & Automation - Water & Irrigation Systems

Kilimo is an Argentine firm specializing in irrigation optimization. They offer a complete overview of a farm's water needs, using weather data, satellite imagery, and soil samples to provide a customized irrigation recommendation.

http://www.kilimo.com.ar

KING AGRO

Founded 2011. Farm Mechanization & Automation - Innovative Materials & Applications

King Agro supplies carbon fiber and Kevlar parts for agricultural machinery. The properties of these materials (light, but strong) improve productivity by decreasing fuel consumption, limiting soil compaction, and reducing maintenance needs.

http://www.kingagro.com.ar

LESS INDUSTRIES

Founded 2013. Farm Mechanization & Automation - Innovative Materials & Applications

LESS Industries offers an automated system that monitors bagged silage. A sensor is inserted into the bag and monitors characteristics such as temperature, humidity, and gas concentration. If any of these factors fall outside the acceptable range the owner can be alerted by text message.

http://www.lessindustries.com

NEOGRAM

Founded 2011. Biotechnology - Plant Genetics

NeoGram is focused on developing specific traits of forages that are particularly efficient for use in cattle grazing. They are focused on increasing digestibility as well as sustainability by developing types of grass that require fewer inputs. Specifically, they are developing an improved variety of Grama Rhodes pasture, called Gramax.

http://www.neogram.com.ar

S4

Founded 2010. Big Data & Precision Agriculture - Data Analytics & Decision Support Technologies

S4 is an analytics company which collects, processes, and sells data which is used by agribusinesses and related firms to improve decision making. The company was founded in Argentina in 2010 and has since expanded to include an office in the United States. They are focused regionally on the Americas.
http://www.s4AgTech.com

SISMAGRO

Founded 2007. Farm Management & Information Services - Farm Management Software

Sismagro is a cloud-based farm management software that provides farmers with different tools to plan, manage and track farming activities and as well as to assess and follow-up different profitability indicators.
https://www.sismagro.com

TAMBERO.COM

Founded 2012. Farm Management & Information Services - Mobile Technologies

Tambero.com helps cattle farmers manage their herds by providing software specifically targeted for the needs of dairy and cattle farms. The free, mobile-optimized applications help farmers collect and track information about their herds that can be used to improve decision making. They are a subsidiary of NeoGram (see above profile).
https://www.tambero.com

VERION AGRICULTURA

Founded 1991. Big Data & Precision Agriculture - Smart Equipment

Verion Agricultura manufactures agricultural equipment that incorporates precision farming principles. Their guiding, seeding, and spraying equipment incorporates proprietary technology to ensure that farm management practices are as optimized as possible.
http://www.agriculturaverion.com

BRAZIL

AGROINOVA

Founded 2011. Farm Management & Information Services - Farm Management Software

Agroinova offers operation management software packages tailored to the needs of the dairy and aquaculture industries. They aim to help producers improve their management by tracking key factors and providing feedback to farmers through an internet based dashboard.
http://www.agroinova.com.br

AGROPRECISION

Founded 2007. Big Data & Precision Agriculture - Data Analytics & Decision Support Technologies

AgroPrecision offers a suite of precision agriculture services, with focus on soil mapping, variable fertilizer applications, and technical advisory.
http://www.agroprecision.com.br

ALITECNO

Founded 2001. Novel Farming Systems - Aquaculture Systems & Technologies

Alitecno is a consultancy dedicated to the improvement of aquaculture and fisheries in Brazil. As PTZ Consultoria, they also serve as the Brazilian contact for Norwegian based aquaculture firm, Smart Farm AS.
http://www.alitecno.com.br

BIO CONTROLE

Founded 1997. Biotechnology - Biologicals

Bio Controle is a Brazilian firm offering Integrated Pest Management solutions based on the use of pheromones and other naturally occurring biological compounds to control crop infestations.

http://www.biocontrole.com.br

BOVCONTROL

Founded 2012. Big Data & Precision Agriculture - Data Analytics & Decision Support Technologies

BovControl provides a multifaceted platform to collect and analyze meat and dairy production data in an effort to improve efficiency and increase production. BovControl emphasizes automation, reliability, and efficiency.

http://www.bovcontrol.com

BR3 AGROTECNOLOGIA

Founded 2001. Biotechnology - Biologicals

BR3 offers a line of natural fungicides and pesticides for agricultural and personal application. These products give farmers a sustainable solution for integrated pest management - including weeds, insects, and other plagues. Their main product is Fegatex.

http://www.br3.ind.br

BUG AGENTES BIOLOGICOS

Founded 2001. Biotechnology - Biologicals

BUG creates and sells natural solutions for controlling pests on the farm. They offer a series of insects that are natural predators to common crop plagues and that help farmers improve crop quality and control pests without the use of synthetic pesticides.

http://bugagentesbiologicos.com.br

ENALTA

Founded 1999. Big Data & Precision Agriculture - Integrated Hardware & Software Solutions

ENALTA offers a diverse array of software and hardware solutions to agricultural businesses to help them improve input and farm management. Their systems help farmers monitor operations so that they can improve decision making and ultimately increase their output.

http://www.enalta.com

FALKER

Founded 2005. Big Data & Precision Agriculture - Integrated Hardware & Software Solutions

Falker develops, manufactures and sells a complete suite of precision agriculture equipment and software applications, including applications for variable rate technology, soil compaction and irrigation management.

http://www.falker.com.br

GEOCICLO

Founded 2007. Biotechnology - Fertilizers

Geociclo is a biotechnology company that produces a repurposed fertilizer from organic matter that is intended to replace chemical alternatives. They collect agricultural and industrial waste and treat it to create a fertilizer compound which is packed into pellet form for application.

http://www.geociclo.com.br

HORTIAGRO

Founded 1995. Biotechnology - Plant Genetics

HortiAgro develops and produces hybrid vegetable seeds through genetic breeding programs. Hortiagro now has a germplasm bank with more than 40,000 varieties of seeds, some with unique sets of genetic improvements.

http://www.hortiagrosementes.com.br

IMEVE

Founded 1980. Biotechnology - Animal Nutrition & Health

IMEVE is a veterinary company that sells a wide array of products designed to improve animal health. The company leverages extensive R&D capabilities as well as probiotic technologies to offer modern solutions for farmers and pet owners.

http://www.imeve.com.br

INPRENHA

Founded 2008. Biotechnology - Animal Nutrition & Health

Inprenha produces biotechnological agents designed to aid the reproductive cycle of animals. Their products work to increase pregnancy rates and reduce the incidence of mortality during pregnancy. Their primary agriculture focus is cattle while they also serve the small animal and pet markets.

http://www.inprenha.com.br

PROMIP

Founded 2006. Biotechnology - Biologicals

PROMIP specializes in Integrated Pest Management, or IPM, developing biological tools to combat insect and disease infestation of crops. The firm focuses on developing strains of insects which can naturally eradicate other pests, avoiding the application of pesticides. Their products may be used in a comprehensive crop management program that includes plant genetics and chemical applications.

http://www.promip.agr.br

SAFE TRACE

Founded 2005. Supply Chain Technologies - Food Traceability & Safety

Safe Trace is a Brazilian firm offering a comprehensive traceability system for the meat industry. Their solution guarantees tracking and proper labeling at every step of the production chain, from producer to consumer, and ensures accountability and that proper risk identification and containment measures can be taken in the event of an emergency.

http://www.safetrace.com.br

SONTRA

Founded 2013. Supply Chain Technologies - Food & Ag Logistics

Sontra is a mobile application that connects independent transportation companies and drivers to facilitate the availability and contract of freight services across Brazil.

http://www.sontracargo.com.br

STRIDER

Founded 2013. Big Data & Precision Agriculture - Integrated Hardware & Software Solutions

Strider provides a highly customized crop protection solution by using in-field sensors and other data collection technologies to help farmers manage pesticide application.

http://www.strider.ag

XMOBOTS

Founded 2007. Big Data & Precision Agriculture - Drones & Satellite Imagery

XMobots develops and manufactures drones and software that are integrated to provide a range of agricultural maps and diagnosis for some of the mainstream crops produced in Brazil, including sugarcane, cotton and soybean.

http://www.xmobots.com

CHILE

AGRIBOTS

Founded 2014. Farm Management & Information Services - Market Data & Benchmarking Tools

Agribots is an open source software platform that allows producers to share data and use information from their peers to achieve best management practices. The company provides data sharing support including sensors and software. Data is aggregated and used by Agribots.

http://www.agribots.com

AGRIVERSITY

Founded 2015. Farm Management & Information Services - Training & Education

Agriversity is an online education and training platform designed to address the specific needs of agriculture. The platform offers courses for developing both basic skills and advanced technical training. Ranging from tutorials and workshops to more complex courses, the product is targeted at users looking to differentiate themselves through higher qualifications and companies wishing to train their staff or provide technical assistance to customers.

http://www.agriversity.org

AGRONOMETRICS

Founded 2013. Farm Management & Information Services - Market Data & Benchmarking Tools

Agronometrics is a subscription based information service providing commodity pricing and volumes from across the globe. They specialize in information for fruits and also can provide customized research as required.

https://www.agronometrics.com

AGROPRECISIÓN

Big Data & Precision Agriculture - Drones & Satellite Imagery

AgroPrecisión provides a system of sensors and mapping services which allow their customers to engage in precision agriculture and make targeted management decisions related to weather, water, and plant and soil quality. Their product is especially popular with the wine industry.

http://www.agroprecision.cl

AGROPRIME

Founded 2001. Farm Management & Information Services - Farm Management Software

Agroprime offers a business management software specially designed for farming companies. The service is offered as a SaaS, with modules that cover all major processes, and allow for improved planning, automatized processes and cost optimization.

http://www.agroprime.com

AGROREPORTS

Founded 2012. Farm Management & Information Services - Market Data & Benchmarking Tools

Agroreports produces research and market studies relevant to the fruit industries in Latin America. Their reports range from market research to technical and legal expertise.

http://www.agroreports.com

AGROSAT

Founded 2000. Big Data & Precision Agriculture - Drones & Satellite Imagery

Agrosat is a leader in satellite imagery applied to agriculture, cattle and forestry activities. The company offers a complete cycle diagnostic by integrating services that go from yield estimation to soil and plant diagnose and analysis as well as production monitoring.

http://agrosatchile.cl

AVANCE BIOTECNOLOGIES

Founded 2001. Biotechnology - Biologicals

Avance Biotecnologies develops and markets a range of biotechnology products for the agriculture industry.

http://www.avancebt.com

BIO INSUMOS NATIVA

Founded 2001. Biotechnology - Biologicals

Bio Insumos Nativa develops and markets a portfolio of pesticides, fungicides and stimulants for a wide range of crops.

http://www.bionativa.cl/

BIOGRAM

Founded 2004. Biotechnology - Biologicals

Biogram develops and markets a wide range of biological products for the agriculture industry.

http://www.biogram.cl

BIOPACIFIC

Founded 2007. Biotechnology - Biologicals

Biopacific, formed by an alliance between the Faculty of Science at the University of Chile and local investors, develops and markets several biocontrol applications for the agriculture industry.

http://www.biopacific.cl/

CROP MONITOR

Founded 1999. Big Data & Precision Agriculture - Data Analytics & Decision Support Technologies

Crop Monitor offers a full solution to monitor crop nutrition conditions in the field, with a system based on tree sap analysis.

http://www.cropmonitor.cl

LEMSYSTEM

Founded 2010. Big Data & Precision Agriculture - Remote Sensors

LemSystem offers real-time remote sensor systems to monitor different humidity and temperature conditions in crops.

http://www.lemsystem.com

NEOAG

Founded 2004. Big Data & Precision Agriculture - Integrated Hardware & Software Solutions

NEOAG provides precision agriculture tools including the products (hardware, software) and services (monitoring, mapping) necessary to generate information that enables farmers to improve yields by applying inputs in the most precise way possible.

http://www.neoag.net

PHAGE TECHNOLOGIES SA

Founded 2010 . Biotechnology - Animal Nutrition & Health

Phage Technologies is a biotechnology company focused on the development and commercial application of bacteriophages. Their hallmark product is Milkeeper which is a powdered feed additive designed to control the existence of particular bacteria which can cause health problems for calves in dairy and beef operations. Their technology can be more widely applied to the food industry, as well.

http://pht.cl

RESET TECHNOLOGIES

Founded 2014. Farm Management & Information Services - Farm Management Software

Reset Technologies is a company that develops technology platforms for the agriculture industry. Their hallmark product, Sofía Gestión Agrícola is a comprehensive, digital farm management solution that can be implemented by producers of all sizes.

http://www.reset.cl

UAV-IQ

Founded 2015. Big Data & Precision Agriculture - Drones & Satellite Imagery

UAV-IQ offers a customized flyover drone solution to help farmers more accurately assess the state of their land. The drones create custom imagery and maps that can be used immediately for management decisions. Targeted at the wine industry.

http://uav-iq.farm

WISECON

Founded 2006. Farm Mechanization & Automation - Water & Irrigation Systems

WiseConn offers a cloud-based, remote sensing solution to monitor different field conditions to optimize irrigation application.

http://www.wiseconn.cl

COLOMBIA

FARMAPP

Founded 2011. Farm Management & Information Services - Mobile Technologies

Farmapp integrates mobile technologies and farm management software to provide real-time information about soil, crops and weather conditions to support decision-making at the farm.

http://www.farmappweb.com

LIFEPACK (PAPELYCO)

Founded 2011. Supply Chain Technologies - Active & Intelligent Packaging

Lifepack produces packaging (plates, cups, sleeves, boxes etc.) made of natural fibers and local seeds that are not only 100% biodegradable, but also plantable. After use the packaging can germinate into new plants (strawberries, flowers, tomatoes, herbs, etc). Lifepack contributes to the reduction of GHG emissions as they are a substitute for polymer products such as plastic, foam and conventional paper.

http://www.papelyco.com

SIMPLE AGRI

Founded 2014. Farm Management & Information Services - Farm Management Software

Simple Agri is a cloud-based agricultural management solution specifically designed to help keep detailed records and maintain thorough control of crops. The comprehensive system covers all aspect of farm management and record keeping.

http://www.simpleagri.com

SIOMA

Founded 2015. Big Data & Precision Agriculture - Remote Sensors

Sioma develops integrated solutions for precision agriculture applied to major Colombian crops, including palm oil and bananas. The company integrates different sensor and imagery equipment to provide real-time data relevant for farmers, especially related to irrigation, drainage and fertilization requirements.
http://www.siomapp.com

PARAGUAY

SUSTENTAP

Founded 2011. Big Data & Precision Agriculture - Data Analytics & Decision Support Technologies

SUSTENTAP is an agronomical advisory firm specialized in precision agriculture which develops software for soil analysis and fertilizer management while providing associated services.
http://www.sustentap.com.py

PERU

RITEC

Founded 2008. Big Data & Precision Agriculture - Data Analytics & Decision Support Technologies

RITEC is an information service that collects and processes data related to weather, water, and soil quality to help farmers make irrigation and crop management decisions. As a complement to the information services the company also offers irrigation equipment as well as a portfolio of fertilizers and other crop nutrition products.
http://www.ritec.com.pe

URUGUAY

AGRONÓSTICO

Founded 2015. Big Data & Precision Agriculture - Data Analytics & Decision Support Technologies

Agronóstico offers to farmers a suite of information services focused on predicting, optimizing and monitoring agricultural production.
http://www.agronostico.com

IEETECH

Founded 2012. Big Data & Precision Agriculture - Smart Equipment

IEETech has developed a platform that can track and detect anomalies in livestock behavior at any time and place with the aim of isolating the occurrence of such anomalies as soon as possible.
http://www.ieetech.com

OKARATECH

Founded 2014. Big Data & Precision Agriculture - Data Analytics & Decision Support Technologies

OKARATech is a joint venture between precision agriculture company OKARA and software company GeneXus ARTECH. The firm focuses on big data and artificial intelligence, providing digital tools to synthesize information generated from various sources and improve decision making.
http://www.okaratech.com

Methodological notes

The information and opinions in this publication were prepared by Valoral Advisors Sarl and Quarterra LLC. The information and opinions have been prepared from public sources, including but not limited to fund documents available from fund managers, companies' websites, industry presentations and industry news.
The funds surveyed represent only a limited portion of the available funds in the market. The survey focuses only on investment funds managed by private asset managers that invest in assets related to the food and agriculture industry and which are offered to a range of retail, HNWI and institutional investors.
This survey does not include most commodity and equity hedge funds. The survey does not consider the direct investments by sovereign funds, pension funds and government agencies and funds that are privately owned and not opened to investors.
The results shown may include assumptions and the information and opinions may not be up to date.
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Disclaimer

The aim of the "Fields of Promise: The Untapped Potential of the South America AgTech Space" study is to give general information regarding food & agriculture investments and trends in an educational context only.
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ABOUT VALORAL ADVISORS AND QUARTERRA

Valoral Advisors is an independent investment advisory firm focused exclusively on the global food & agriculture asset class and offering advisory, transactional and investment management services to asset managers and investors.

Quarterra is a boutique strategy consultancy that partners with food and agriculture businesses to design, develop, and define the strategic solutions that drive their clients' global success.

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