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Mapping AgTech in Brazil – main markets and hotspots

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This article provides current developments and insights into technological start-ups in agriculture, in short AgTechs, in Brazil based on a 2021 mapping study done by EMBRAPA, SP Ventures and Homo Ludens. The study identified 1574 AgTechs and 79 organizations active in AgTech as accelerator, incubator or investor. The total investment of US$ 70 million in venture capital in AgTechs (in 2020) is a relatively modest amount when compared to other large agriculture producing and exporting countries. Geographic hotspots for AgTechs are mainly located in the south and southeast of Brazil, with a special mention of the cities São Paulo, Piracicaba and Viçosa. The main markets of these AgTechs are innovative foods, digital platforms for farm management and platforms for trading & selling products.

Introduction

Agriculture plays a very important role in the economy of Brazil. The sector is responsible for about a fifth of the Brazilian GDP (and in harvest record years 2020/2021, even about a quarter) and for nearly half of all Brazilian exports[1]. Brazil is among the global top players in the production and export of, among others, soy, beef, chicken, corn, sugar, paper & cellulose, orange juice, coffee and cotton.

Continuous investments in research and innovation is one of the reasons Brazil was able to obtain the position of sole tropical agriculture world player. The innovation ecosystem involves, for example:

- the Brazilian Agricultural Research Corporation (EMBRAPA), founded by the Ministry of Agriculture, Livestock and Food Supply (MAPA),
- high ranking universities such as Luiz de Queiroz College of Agriculture (ESALQ-USP) in Piracicaba and Federal University of Viçosa (UFV),
- innovative companies, both national and multinational (among others Dutch companies such as DSM, De Heus, Koppert, Rijk Zwaan and Friesland Campina), including start-ups.

This article focuses on start-ups that develop technology applications for agriculture, so-called AgTechs, providing a brief summary of a recent mapping study [1] published by EMBRAPA, SP Ventures and Homo Ludens, with support from MAPA. Although the study uses the term AgTech, its scope actually covers the total value chain (before, on and after the farm) which is also known as AgriFoodTech. According to the report, it is "inefficient to import technologies and innovations" due to Brazil's particular features such as climate, territorial extension and soil variability, which gives room to Brazilian AgTechs.

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[1] In 2020, the total Brazilian GDP was about R$ 7,45 trillion of which R$ 2 trillion from agriculture. Total exports were about US$ 210 billion of which US$ 101 billion from agriculture.

Mapping AgTech start-ups

The mapping was done by desk research and an outreach to companies to voluntarily register for this study, which took place in 2020 and early 2021. To qualify as an AgTech start-up for this study, companies must, among others, have activities related to the agriculture value chain and have been established less than 20 years ago. Start-ups that have been acquired by other companies and foreign AgTechs active in Brazil were excluded from this study.

This resulted in the identification of 1574 AgTechs and 79 organizations active in AgTech as accelerator, incubator or investor, all over Brazil.

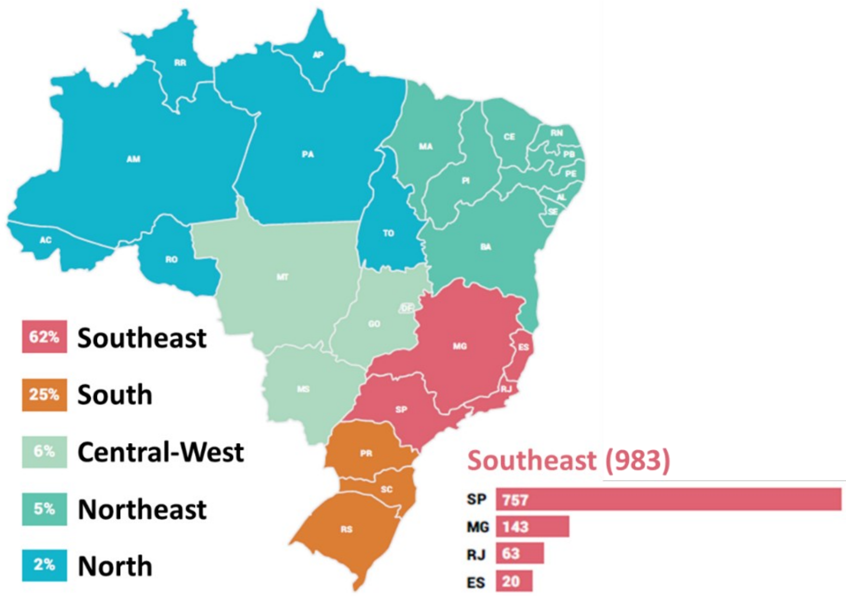
In 2020, Brazilian AgTechs received about US$ 70 million in venture capital investments [2]. This is a relatively small investment, when compared to:

- other large agriculture producers and exporters, like the USA (US$ 13.2 billion), China (US$ 4.8 billion), India (US$ 1.8 billion) and also the Netherlands (US$ 249 million) [3],
- total investment of US$ 3.5 billion in Brazilian technological start-ups in 2020.

SP Ventures, co-author of this study, informed that it´s difficult to obtain accurate public data on investments in Brazil, but that available data from 2021 indicates a "relevant growth" in AgTech investments.

AgTech hotspots

Almost 90% of the identified AgTechs are located in the south and southeast of Brazil, as shown in the figure below [1]. About 48% of them are located in the state of São Paulo followed by Paraná (10%), Minas Gerais (9%), Rio Grande do Sul (8%) and Santa Catarina (6%). When looking at the number of AgTechs per 100,000 inhabitants, the state of Santa Catarina leads the ranking, closely followed by the state of São Paulo.



De top 10 cities where AgTechs are located, is as follows:

City – state (# AgTechs)	
São Paulo – SP (345)	Porto Alegre – RS (42)
Piracicaba – SP (60)	Belo Horizonte – MG (40)
Curitiba – PR (59)	Ribeirão Preto – SP (39)
Rio de Janeiro – RJ (55)	Florianópolis – SC (36)
Campinas – SP (48)	Londrina – PR (28)

When looking at the number of AgTechs per 100,000 inhabitants, the city Viçosa (state of Minas Gerais) leads the ranking, closely followed by Piracicaba (state of São Paulo). It is no coincidence that these cities are also home to the aforementioned high ranking agriculture universities UFV and ESALQ-USP as well as the larger innovation hubs/incubators Esalq Tech, AgTech Garage and Pulse Hub (an innovation hub from Raízen, a joint venture by Shell and COSAN in renewable energy).

Main AgTech markets

Of the 1574 AgTechs, 200 are active in the segment “before the farm”, 657 “on the farm” and 719 “after the farm”, covering the whole value chain from input materials, financial & data services and machinery to new foods, marketplaces and packaging. The table below lists the top 10 of main market categories where these AgTechs are active. This ranking clearly shows the importance of FoodTechs.

Top 10 Categories	Segment	# AgTechs	% AgTechs
Innovative foods and new food trends	After	293	18.6%
Rural property management system	On	154	9.8%
Integrating platform of systems, solutions & data	On	111	7.1%
Marketplaces and platforms for trading & selling	After	100	6.4%
Drones, machines and equipment	On	79	5.0%
Remote sensing, diagnostics and monitoring	On	70	4.4%
Content, education, social media	On	58	3.7%
Storage, infrastructure and logistics	After	56	3.6%
Fertilizers, inoculants and plant nutrition	Before	46	2.9%
Online grocery store	After	45	2.9%

The segment “before the farm” appears only once in the overall top 10. To provide a bit more insight into this segment, the table below shows its top 3.

Top 3 Categories – Before the farm	Segment	# AgTechs	% AgTechs
Fertilizers, inoculants and plant nutrition	Before	46	2.9%
Financial services (insurance, credit, etc.)	Before	43	2.7%
Laboratory analysis (nutrients, soils, etc.)	Before	33	1.9%

The study also looked at the number of investment rounds, incubations and accelerations of AgTechs, collectively called “events”. Analyzing the focus of these events, it concludes that productivity increase through technological management solutions is getting most of the attention from incubators, accelerators and investors, followed by financial solutions. And the largest category of AgTechs, namely Innovative foods & new food trends (18.6%), is actually getting a relatively small amount of events (5%).

To provide examples of Brazilian AgTechs, we selected a few companies that recently made the news as winners of national or international AgTech awards:

- Elysios (Porto Alegre, RS); Winner of the AgTech Garage Award 2021. Software for supply chain and crop management for farmers, allowing e.g. crop estimates and traceability.
- Solinftec (Araçatuba, SP); Winner of the AgFunder Agrifood Tech Innovation Award 2019. Integrating platform for digital agriculture and crop automation, connecting people, machines and data. Active in 10 countries.
- Krilltech (São Paulo, SP); Winner of the KPMG Global Tech Innovator Award 2021. Developing biofertilizers, using “green nanotechnology”, to improve productivity and nutritional value of crops.

Innovation opportunities

The Netherlands and Brazil, both global players in agriculture, are facing the challenge of further increasing agriculture productivity while at the same time increasing resource efficiency and sustainability. Furthermore, besides food, feed and fibers, agriculture is expanding more and more into the high-tech markets of (bio)energy and (bio)materials. Digital and high-tech applications, which have already penetrated other markets like finance and healthcare, still have room to grow in agriculture, also given the relatively modest amount of investments in Brazil when compared to other large agricultural producers and exporters. The transition to high-tech markets and implementation of digital technologies requires development and application of advanced technology in the whole agriculture value chain and the development of a fruitful entrepreneurial ecosystem. This is where excellent opportunities for collaboration between Brazil and the Netherlands arise. Recent joint innovation projects have already shown that both countries have complementary knowledge and expertise [4], e.g. in precision agriculture. AgTech will continue to be a focal area in our activities, together with our colleagues of the agricultural attaché network, to further expand the collaboration in the field of science, technology and innovation.

More information

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Sources and further reading

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