

Global AgriFoodTech

Investment Report 2024



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Global agrifoodtech investing in 2024



There's no way to sugarcoat this: investment in agrifoodtech startups is at its lowest point in six years. Not only is it lower than those pre/early-Covid, crazy-VC-inflated-valuations years between 2018 and 2021 but it also declined as an overall portion of the global venture capital landscape. In 2023, agrifoodtech represented just 5.5% of all venture capital sector dollars, down from 6.7% in 2022 and 7.6% in 2021.

The 50% year-over-year funding decline is a result of fewer and smaller deals. The decline in deal activity was less pronounced than dollar investment at 26% year-over-year (and we expect more deals to come to light in the coming months). Average deal sizes were down nearly 30%, year-over-year and some 50% on 2021.

While some deals have been down rounds, dramatically shrinking startup valuations, deal averages and medians, there's also been a halt to dealmaking in many instances at the early stages.

This is in part down to some founders' refusals to lower their company valuation expectations but in some cases, the

correction has gone too far. Beleaguered plant-based company Beyond Meat has been trading on the Nasdaq stock exchange at a valuation of just 1x revenues; that's far below the 3x-5x multiples you typically see with an acquisition or among publicly-listed CPG companies, let alone the 8-10x you might expect to see for tech companies.

Given that VCs typically use the revenues and earnings multiples of publicly listed companies to model out an "if everything goes right" scenario when pricing early-stage rounds, "now, even a \$15 million valuation for a well-performing Seed/Series A startup can look rich," Rob Leclerc, our founding partner, wrote to investors recently.

Of course, we know this category and a few others got out of control valuation-wise but that was not unique to those categories and was certainly the case elsewhere in tech.

This might read as depressing news, and it should. You'll no doubt find more closure stories on *AgFunderNews* in the coming months; 2024 is going to be a painful year for many, especially the more mature agrifoodtech companies. But it will also be an incredible year to invest in new companies that have been forced to rethink their business models and take a leaner approach; that's healthy for the market and for valuations.

That agrifoodtech is just 5.5% of global venture capital investment is at odds with food

and agriculture's contribution to the global economy and livelihoods; the industries contribute at least 15% to global GDP, hire over half the workforce, and contribute to one third of greenhouse gas emissions.

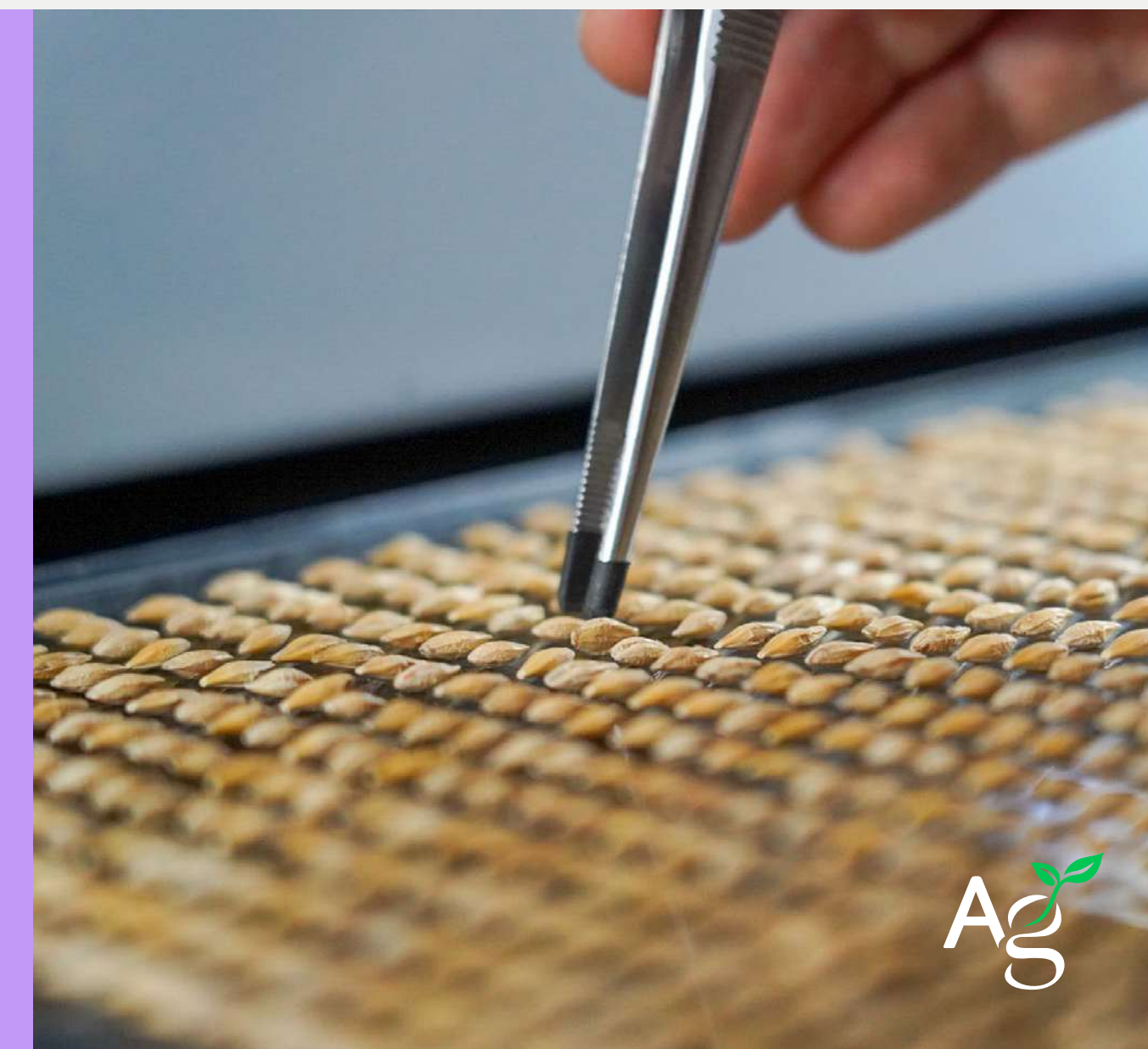
Underinvestment is somewhat understandable given the relative lack of decent venture capital exits, which the industry desperately needs in 2024.

But has the correction gone too far? Why aren't more investors coming into agri-food?

Find out what agrifoodtech VCs think on pages 13-16 and let us know what you [think here](#) »

Happy reading!

Louisa Burwood-Taylor
and the AgFunder team



About us and our partners



AgFunder is one of the world's most active foodtech and agtech VCs. We're rethinking venture capital for the 21st century. Born in Silicon Valley in 2013, we use technology, media and our global network to invest in and support transformational founders and technologies. With the world's only truly global agrifoodtech investment portfolio, we've invested in more than 100 companies across six continents.

AgFunderNews reports on the evolution of the global food and agriculture system. By going beyond the headlines, we analyze the people, companies and technologies aiming to improve human and planetary health. Publishing daily news, our team of award-winning journalists delivers deeper insight on the growing foodtech, agtech and climate tech industries. A multimedia publication, AgFunderNews is a division of AgFunder Inc, one of the world's most active agrifoodtech venture capital firms.

AgriFutures grow^{AG} is the gateway to Australian and global agrifood innovation. Explore, find and connect with world leading agricultural research, unique technologies and commercialisation opportunities online in one, easy to use location. growag.com

AgriFutures evoke^{AG} is a global agrifood tech event. It brings together investors, entrepreneurs, farmers, government, researchers and corporates for a more resilient, productive, and profitable agricultural sector and value chain. Join us in Brisbane, Australia on 18-19 February 2025. evokeag.com

Key insights



Agrifoodtech startups raised \$15.6 billion globally in 2023, down 49.2% percent from \$30.5 billion in 2022.

Funding to all categories declined with the exception of two: Bioenergy & Biomaterials and Farm Robotics, Mechanization & Equipment.

Bioenergy & Biomaterials was the biggest category, raking in \$3 billion in 2023, up 20% from 2022.

Investment in Farm Robotics, Mechanization & Equipment continued its steady upward trajectory of the past five years, increasing 9% year-over-year to \$760 million.

Funding to upstream startups – those operating on the farm or in food production – accounted for 62% of overall dollar investment in 2023, compared with 51% in 2022 and 30% in 2021.

No global region was immune to the downturn. Europe felt it less acutely with a 14% year-over-year decline in dollar funding. African investment levels remained higher than 2021 at \$260 million whereas Asia did not recover its pre-Covid totals with \$3.8 billion.

The US was particularly badly hit with its share of agrifoodtech funding (\$5.4bn) dropping to just over 30% of global funding; the country usually counts for at least 40% of global totals.

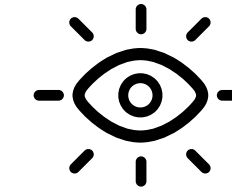
Deal count in 2023 was down 26%, reflecting smaller rounds with one or two exceptions.

The median deal size decreased 9% year-over-year whereas the average was down 30% on 2022 and 50% on 2021.

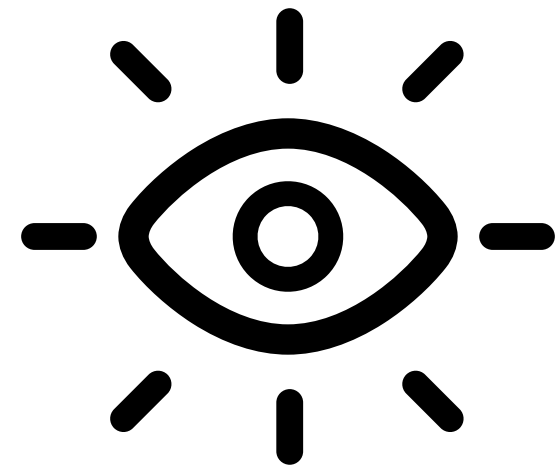
In emerging markets, China and India lost market share to other nations taking a combined 40% of funding, down from 55% in 2021. Startups in Indonesia, Saudi Arabia, Israel, Brazil and Singapore all contributed to the top 20 emerging market deals.

Funding to Ag Biotech – the leading upstream investment category in 2022 – dropped 34% to \$1.9 billion in 2023.

The decline was more pronounced in other categories: Novel farming systems -79%, Cloud retail -75%, eGrocery -60%, Farm Management SW, Sensing & IoT -58%, Online Restaurants & Meal Marketplaces -58%, In-store Retail and Restaurant Tech -57%, Midstream Tech -55%, Home & Cooking Tech -53%, and Innovative Food -51%.



Key insights



TOTAL AGRIFOODTECH
INVESTMENTS OF
\$15.6 billion
IN 2023

BIGGEST DEAL OF 2023

Footprint

**\$830 MILLION
FUNDING**

**BIOENERGY & BIOMATERIALS
SERIES B**

**BIGGEST DOWNSTREAM
CATEGORY**

eGrocery

**\$1.9 BILLION
FUNDING**

(-60% YOY)

**BIGGEST UPSTREAM
CATEGORY**

**Bioenergy &
Biomaterials**

**\$3 BILLION
FUNDING**

(+20% YOY)

BIGGEST DEBT DEAL OF 2023

Eroski

**\$545 MILLION
FUNDING**

EGROCERY



2024 Investment highlights

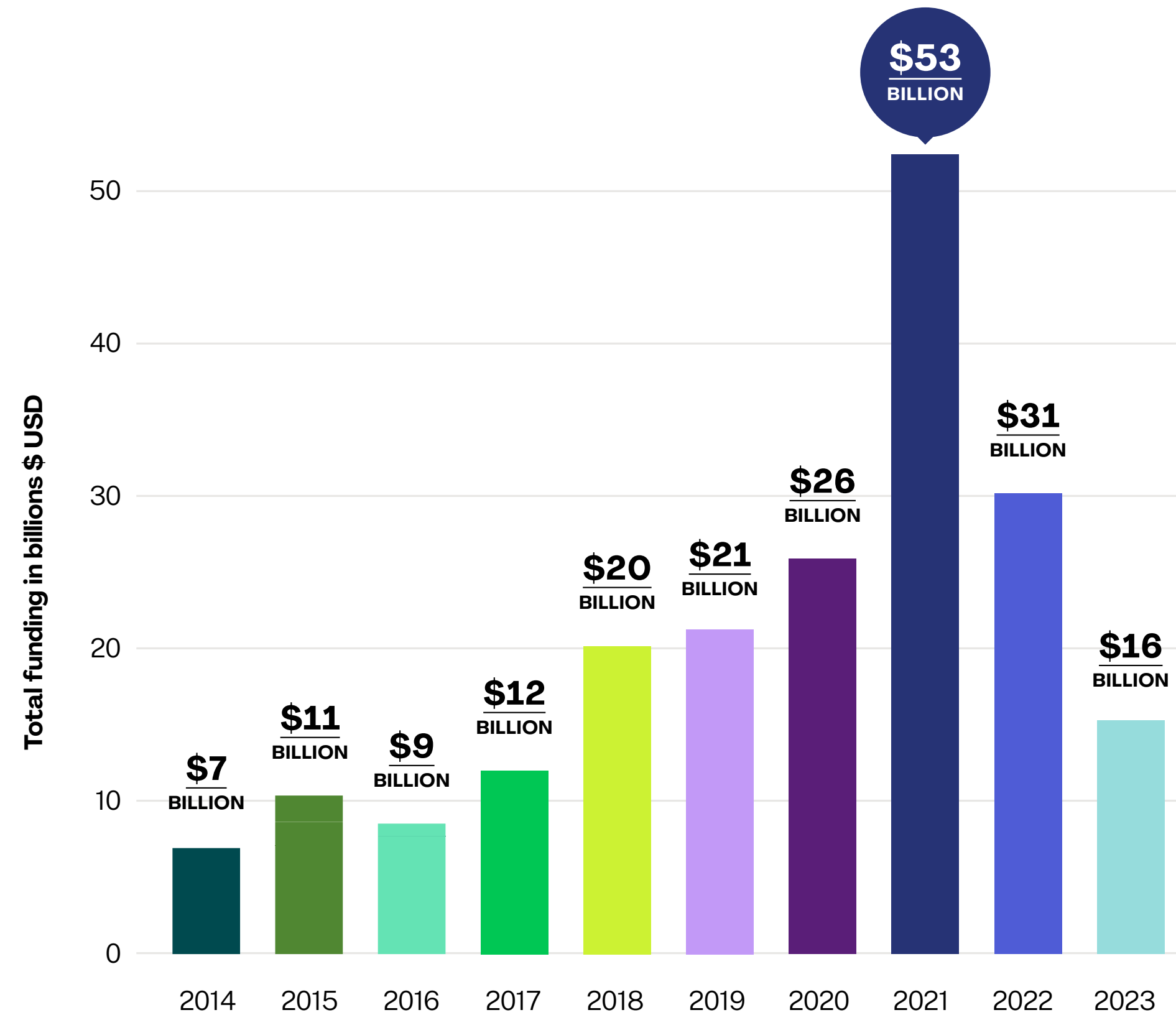


10 years of agrifoodtech Global

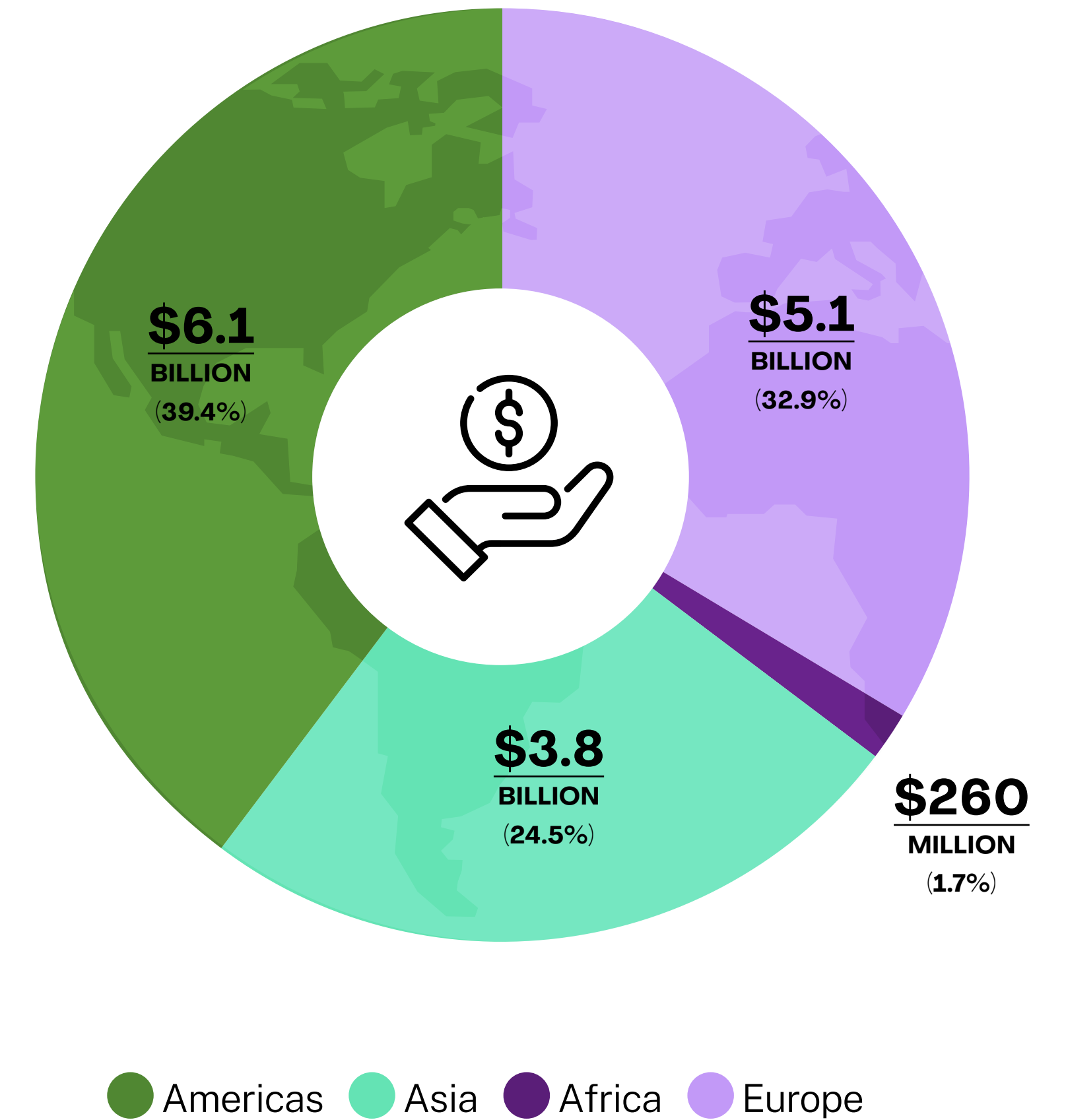
\$15.6 billion
raised globally in 2023

\$204.7 billion
raised globally since 2014

Global agrifoodtech investment by year



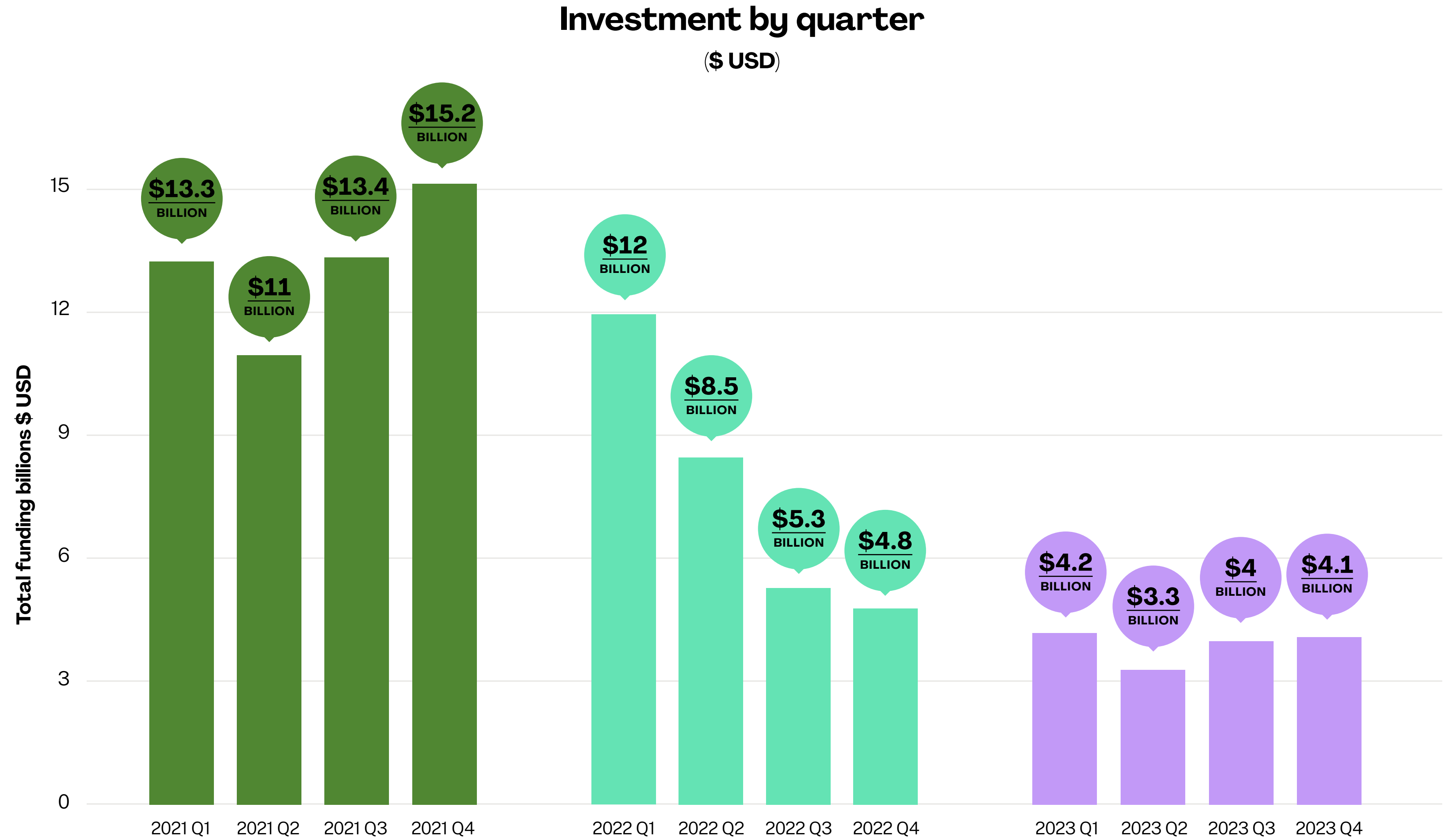
2023 agrifoodtech funding by region



Global agrifoodtech funding

2021-2023

It appears as if the industry is starting a slow recovery, which matches where venture capital investors think we are in the downturn cycle. But there's some way to climb to reach even 2020's levels of investment.



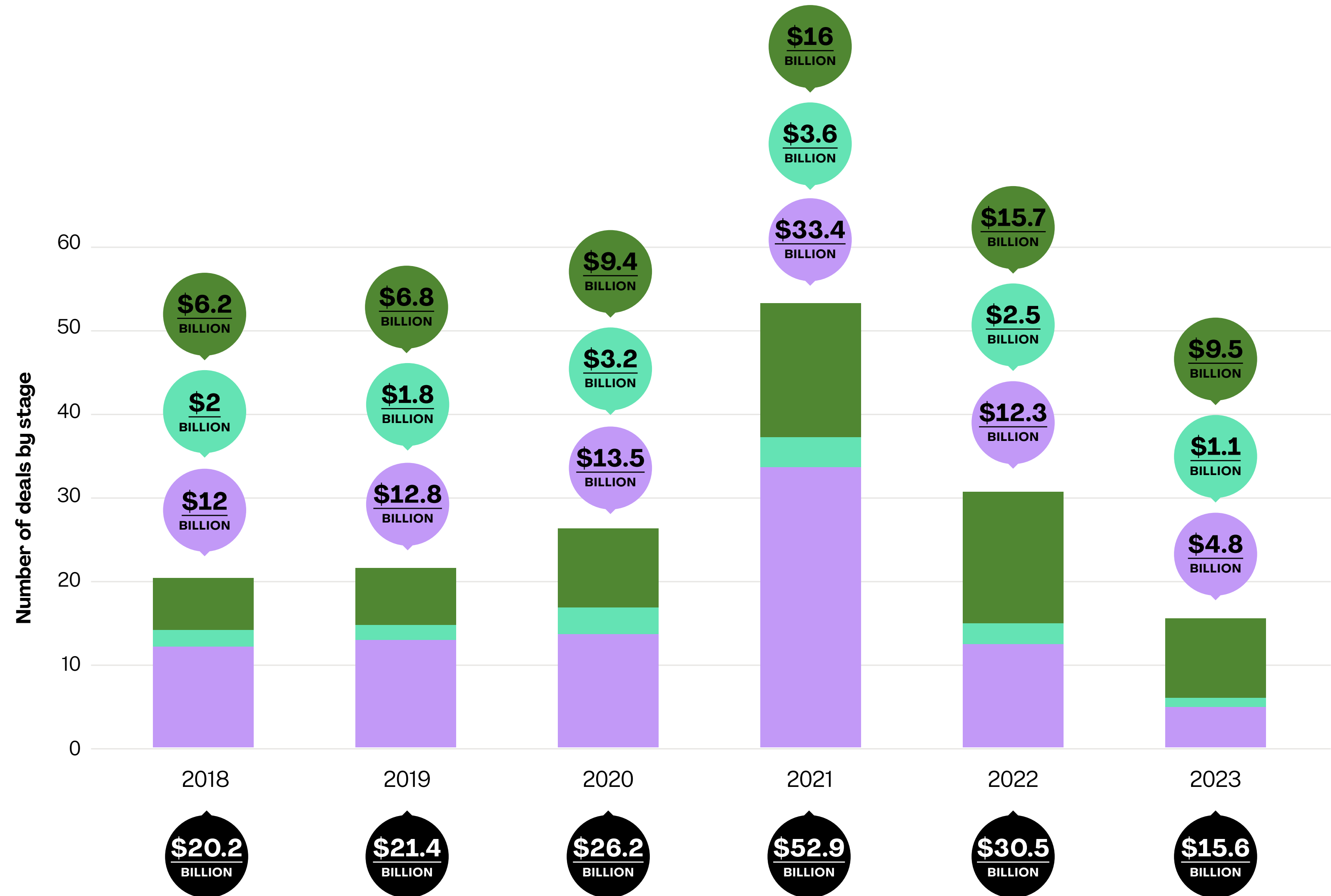
- 2021
- 2022
- 2023

Investments by supply chain

2018-2023

In 2023, the percentage of overall investment moving into upstream categories such as Bioenergy & Biomaterials and Ag Biotechnology continued to increase, with upstream spending accounting for 62% of overall dollar investment in 2023, compared with 51% in 2022 and 30% in 2021.

Global agrifoodtech investment by supply chain (\$ USD)



- Upstream
- Midstream
- Downstream

Investments by supply chain

2018-2023

While total dollar investment was down by 49.2% in 2023 vs 2022, deal count over the same period was down by a more modest 26%, reflecting smaller rounds as investors continued to pare back spending from the heady days of 2021 and early 2022.

Global agrifoodtech deal activity by supply chain



- Upstream
- Midstream
- Downstream

Investments by category

2023 (\$ USD)

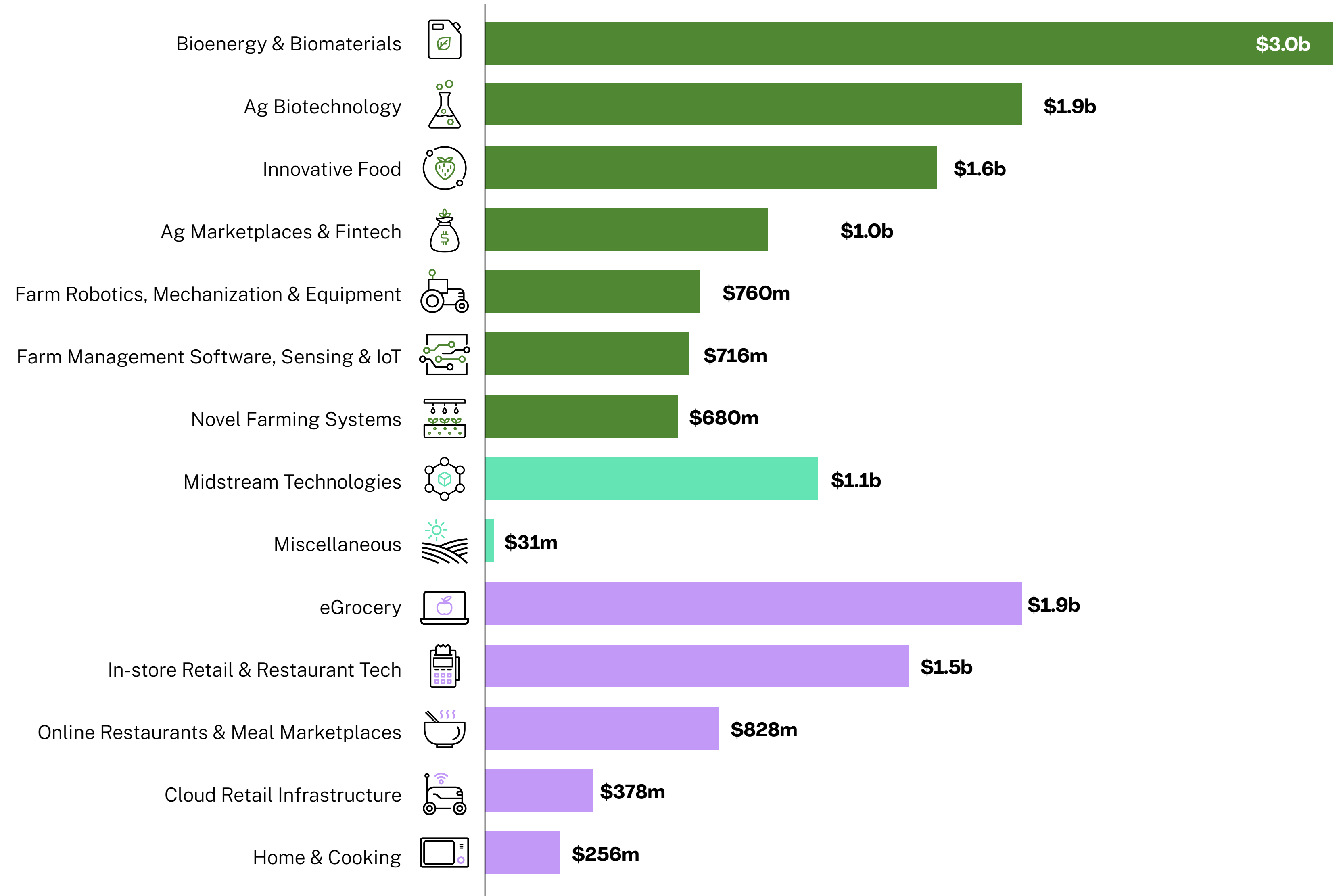
Two categories experienced year-over-year growth in 2023: Bioenergy & Biomaterials (+20%) and Farm Robotics, Mechanization & Equipment (+9%).

While there has certainly been additional innovation in alternative materials and fabrics, a large \$830m investment for Footprint somewhat skewed the picture.

Funding to Innovative Food startups (-50%), which includes the beleaguered alternative protein category, did not decline as much as most other categories; just Ag Biotech (-34%) and Ag Marketplaces + Fintech (-22%) fared better.



- Upstream
- Midstream
- Downstream



Agrifoodtech VC trend predictions for 2024



As part of our review of the year gone by, we polled a range of venture capital investors focused on foodtech and agtech to get their take and predictions for 2024. Here's a taste of their responses.



01

Which categories will bring in the most capital in 2024?

Surprisingly, 15% of respondents still believe alternative protein will garner the most funding in 2024, with cultivated meat and precision fermentation particularly mentioned. The caveat is that most of those respondents are deeply invested in alt protein. Another 12% believe food delivery will be the best-funded category, with some predicting AI will enhance those offerings.

Biotech and biological inputs along with health and nutrition-related startups were also popular choices, gaining 15% and 14% of the vote respectively. Climate and AI each received 9% of the vote.

“By dollars, we’ll have the same leaders as prior years-I think those categories tend to be fairly consistent drivers-eGrocery, inputs, etc.”

Seana Day - Culterra Capital

02

What trends do you expect to see appearing in 2024?

AI and automation, health and nutrition, and carbon were the most mentioned keywords among VC responses.

“Transition, not disruption. The food industry has witnessed an explosion of disruptive innovation over the past 5 years, from plant-based meats to synthetic fat replacers, and many more. All promised to revolutionize what we eat. However, it has turned out to be more hype than bite for many of these products. In 2024, you can’t keep losing money and expect to stay in business. We need to set a more realistic expectation and go back to the fundamentals. True innovations for food come in step changes, and take time to build. To realize that, we need to abandon the thought of ‘disruptive innovation’, and embrace the benefit of ‘sustaining innovation’. But at the end of the day, the innovation that transforms the food industry doesn’t need to be fast and furious/quick and dramatic. We’d prefer to take a more humble mindset, and make it more gradual and less obvious.”

Matilda Ho - Bits x Bites

Agrifoodtech VC trend predictions for 2024



03

What prediction do you have for investing in foodtech and agtech in 2024?

The majority of investors spoke to the need for more discipline among investors and founders but there were other interesting predictions including exits and exciting investment returns.

“More corporate investment activity as VCs continue to have difficulty raising funds.”

Erin VanLanduit - Cargill

“A handful of companies will emerge as clear category leaders with market-leading products.”

Katrin Burt - Grosvenor Food & AgTech

“2024 will be the first year of the new-age farmers. The next generation of farmers is emerging now, as farmland is being passed on and Western countries see a trend to go ‘back to the land’ driven by lifestyle choice and enthusiasm for regenerative practices and biodiversity.”

Mark Durno - Rockstart

“We will see two big exits.”

Manuel Gonzalez - AgFunder

“More early-stage entrants. Slow later stage until shift in interest rates.”

Carter Williams - iSelect Fund

“It’s back to basics, which is fundamentally healthy. Profit over growth. Investors want to understand the pathway to profitability and an exit. I hope to see more climate tech funding going into ag/food.”

**Daniel Skaven Ruben -
FoodTech Weekly/Solvable Syndicate**

“Investments made during 2024 will provide solid investment returns given the quality of businesses still standing will be higher on average (than in 2021 for example), and given that valuations will have further corrected from their highs of the past years.”

Costa Yiannoulis - Synthesis Capital

04

What world events are you worried about?

Sadly this response was the same as last year but with the addition of new conflicts and geopolitical unrest in the wake of the war between Israel and Hamas and increasing tensions between China and Taiwan. There is widespread apprehension about the potential impact of these conflicts on global stability.

Climate change and economic concerns also remain top of mind. Respondents also voiced concerns about social and political issues including populism, socialism, attacks on free speech, and governance, reflecting fears about the direction of political discourse and societal governance.

“Populism leading to too slow a transition to sustainable food systems.”

Jaap Strengers - Future Food Fund

“Several global factors are all contributing to one central concern: food security. Climate change, geopolitical shifts and conflict all remind us how crucial an issue this is and will continue to be, and it’s one we are deeply driven by. Democratizing food sources, mainly with local production, is one key to addressing this on a practical level.”

Nadav Berger - Peakbridge

Agrifoodtech VC trend predictions for 2024



05

What frustrated you in 2023?

Frustrations range from continually inflated valuations to the rapid exit of investors from agrifoodtech.

“Too many people celebrated failures rather than learning from them, and in the end, we – the planet, humanity – actually need to be collectively successful. Perhaps a more controversial take is on founders, who are still not realistic about valuations.”

Yoni Glickman - FoodSparks, PeakBridge’s seed fund

“Entrepreneurs who haven’t realized the importance of focusing on business fundamentals versus focusing on raising VC. They still have blind optimism that VC will keep the business going.”

Seana Day - Culterra Capital

“Endless bridge rounds, forestalling the inevitable.”

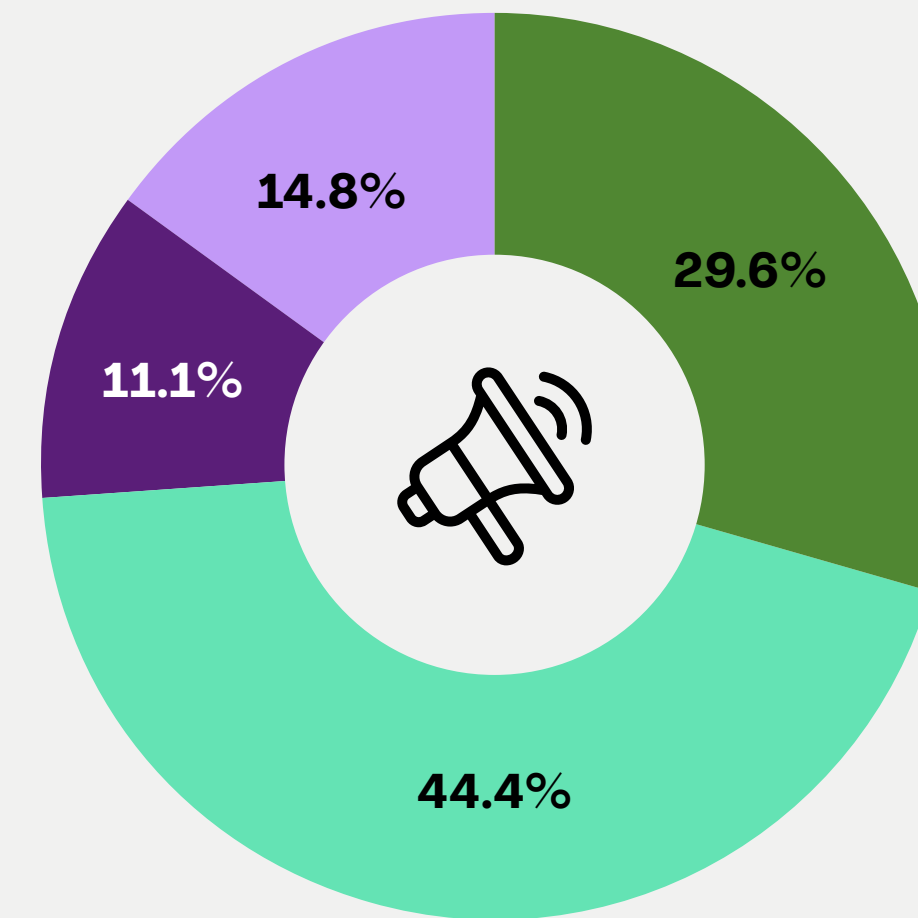
Mark Kahn - Omnivore

“How quickly the generalist funds left the segment once things got tough.”

Gil Horksy - Flora Ventures

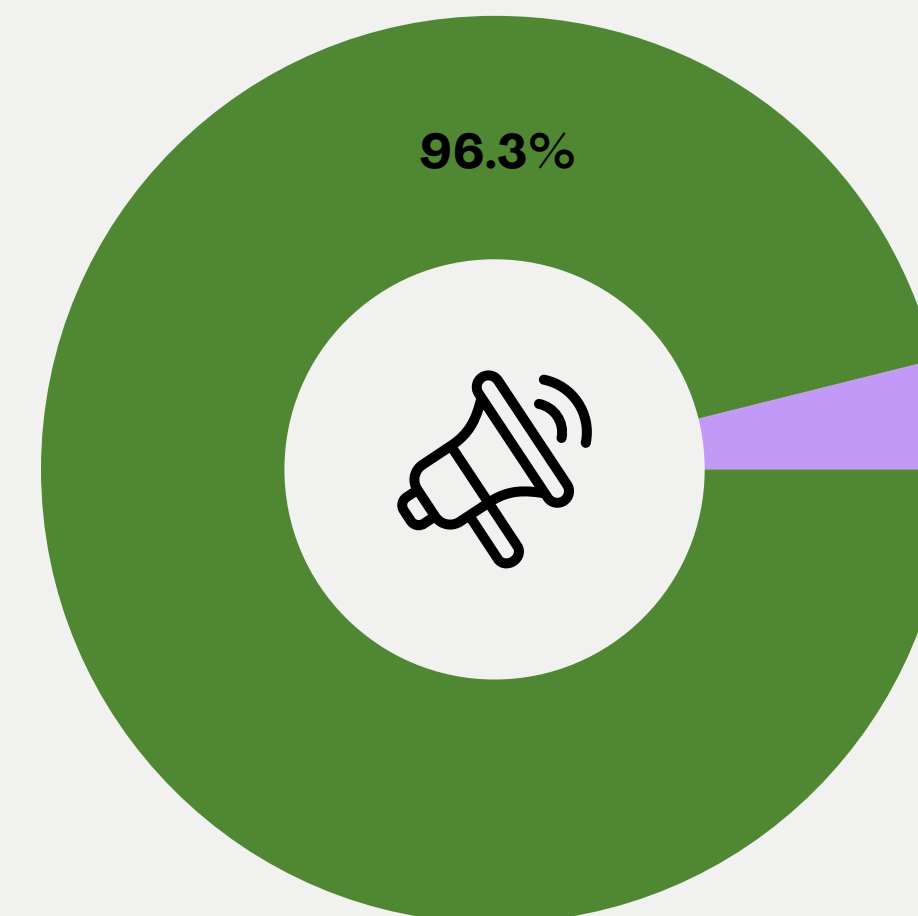
06

Startup valuations and the market correction



Where are we in the current down-cycle? (in valuations/startups' ability to raise)

- This is just the beginning - worse is yet to come
- We're at the lowest point now
- We're over the worst of it - better times to come
- I don't know



Do you expect the startup valuation correction to continue in 2024?

27 responses

- Yes
- No

Why haven't we had more agrifoodtech exits in the past 10 years?

We ask the leading AgriFoodTech VCs*



Katrin Burt

Grosvenor Food & AgTech

Combination of A and C. A young industry with attractive fundamentals provided a breeding ground for overvalued companies compared to their business progress. The quality of products and services is only getting better and the industry will more accurately identify and price value which will lead to exits for the best-run companies that can deploy their solution at scale.

Rob Leclerc

AgFunder

B,C,D. Exits will come, but they also need to be of sufficient magnitude. We will need to focus on investing at the intersection with other sectors.

Jaap Strengers

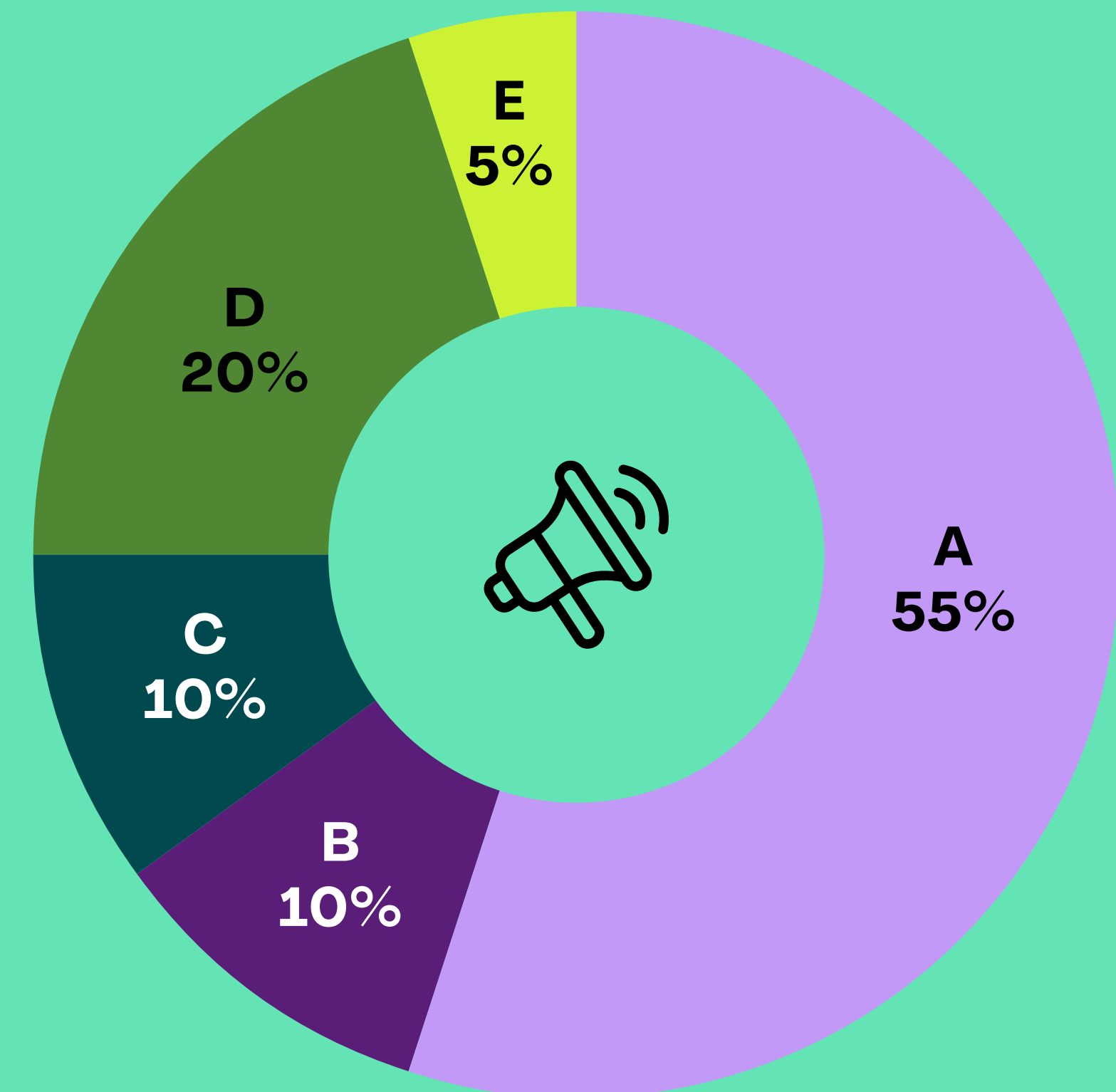
Future Food Fund

Industry has an inherently different growth trajectory; mostly low margins, long R&D and sales cycles. Not a sector in which to get rich quickly! What also did not help is that government support has not materialized in a similar way compared to energy and mobility, for example. There, certain subsidy and tax regimes effectively created a wholly new playing field.

Ben Beldegrun

Aliment Capital

Commodity price swings have made the ag majors conservative; they don't want to buy high cash burn and non-commercialized businesses, but it is also a function of the industry still being young and we still think it's underinvested.



- The industry is still young - exits are coming
- The incumbent corporates are too defensive
- Startups haven't created good enough products/services
- Not all agrifoodtech can produce exit in venture timeframe
- Other

* ACCORDING TO A SURVEY OF 27 AGRIFOOD-FOCUSED VENTURE CAPITAL FIRMS IN NOV/DEC 2023.

About us



AgFunder is a pioneer in agrifoodtech. An investment and intelligence platform with a history of supporting entrepreneurs long before food and agriculture became a topic on investors' agendas. Today, the firm has invested in over 100 companies across six continents and has an AUM of \$200 million. The intelligence platform has a database of over 4 million startups and millions of readers from across the world each year.

 agfunder.com



AgFunder invests in world-leading deep tech startups that tackle important themes such as automation, carbon markets, food as medicine, sustainability, green ammonia, and more.

These investments include **DeHaat, Aquaconnect, Singrow, Nium, Mycoworks, Atinary, Propagate, Dataspan, Juicy Marbles, Umaro, Rarebird, and Brightseed.**

AgFunderNews is one of the keys to AgFunder's success. Along with AgFunder Research reports, it has become the global epicenter for agrifood technology intelligence with subscribers from top stakeholders across the landscape.

Gaia, AgFunder's proprietary data platform, gives the firm unique capabilities in sourcing early-stage deals, expertise, investors, competitors, and insights for its portfolio companies and LPs. Gaia analyzes millions of startups around the clock, using a combination of bespoke machine learning, artificial intelligence, and tailored algorithms over public and proprietary data, specifically designed for early-stage VC. Gaia has sourced several promising portfolio companies and now assists with diligence on all deals.

AgFunder focuses on supporting the best entrepreneurs and companies, regardless of their geographical location. With roughly 50% of its companies based in the US, a track record of successful exits,



and a global network, AgFunder has established itself as the go-to partner for investors seeking global exposure to the agrifoodtech sector.

AgFunder also has a base in Asia with the incorporation of a Singapore office in 2019, together with the launch of GROW Accelerator - Southeast Asia's first specialist agrifoodtech accelerator program. Asia-Pacific investments make up around 20% of the total portfolio.



Investments by category

Investments by category

2023 (\$ USD)

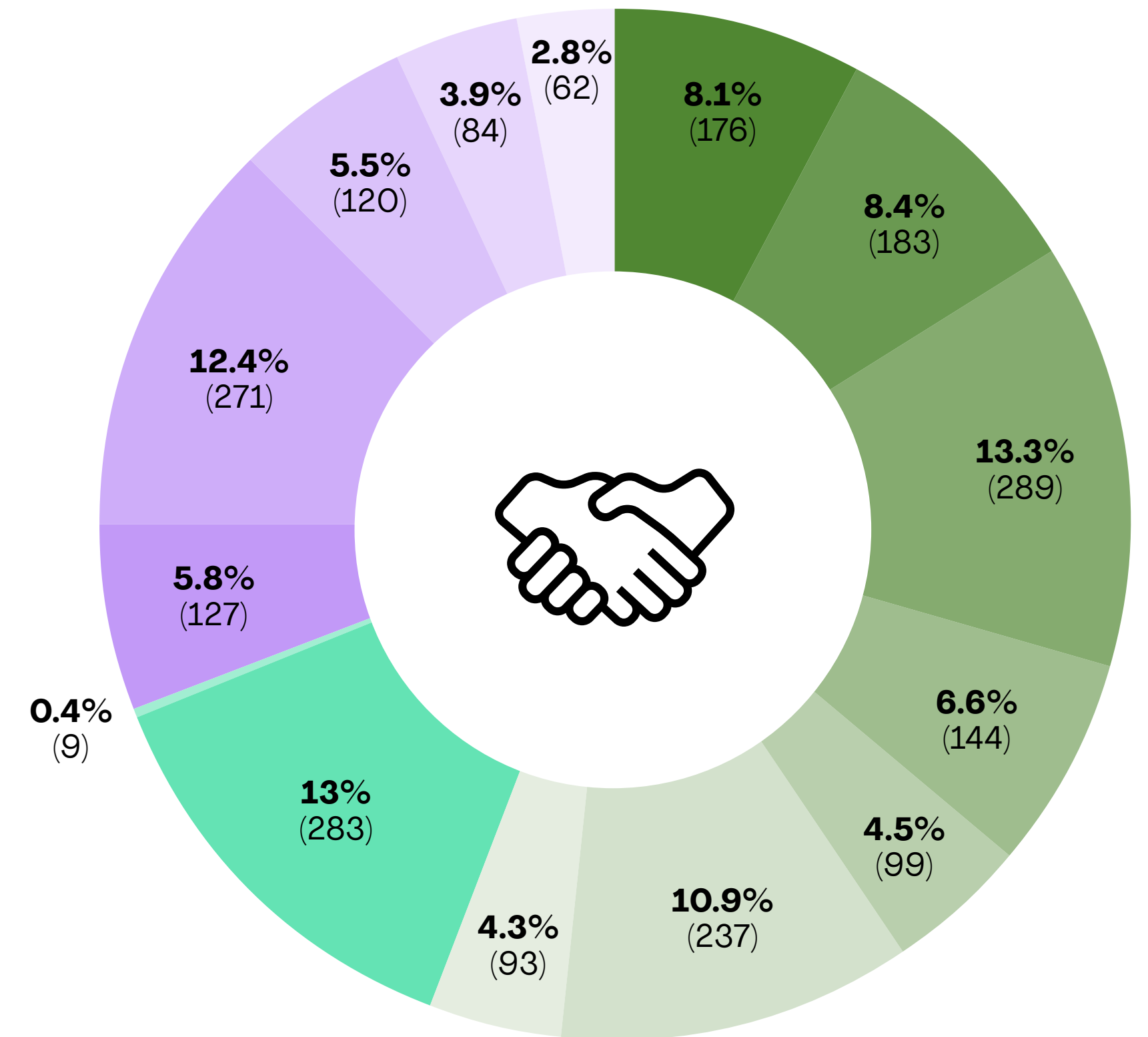
2183 deals
globally in 2023

\$15.6 billion
\$USD investment

Categories by funding (\$ USD)

Category	\$ USD	Deals
Bioenergy & Biomaterials	3.0b	176
Ag Biotechnology	1.9b	183
Innovative Food	1.6b	289
Ag Marketplaces & Fintech	1.0b	144
Farm Robotics, Mechanization & Equipment	760m	99
Farm Management Software, Sensing & IoT	716m	237
Novel Farming Systems	680m	93
Midstream Technologies	1.1b	283
Miscellaneous	31m	9
eGrocery	1.9b	127
In-store Retail & Restaurant Tech	1.5b	271
Online Restaurants & Meal Marketplaces	828m	120
Cloud Retail Infrastructure	378m	84
Home & Cooking	256m	62

Investment by deal count



- Upstream
- Midstream
- Downstream

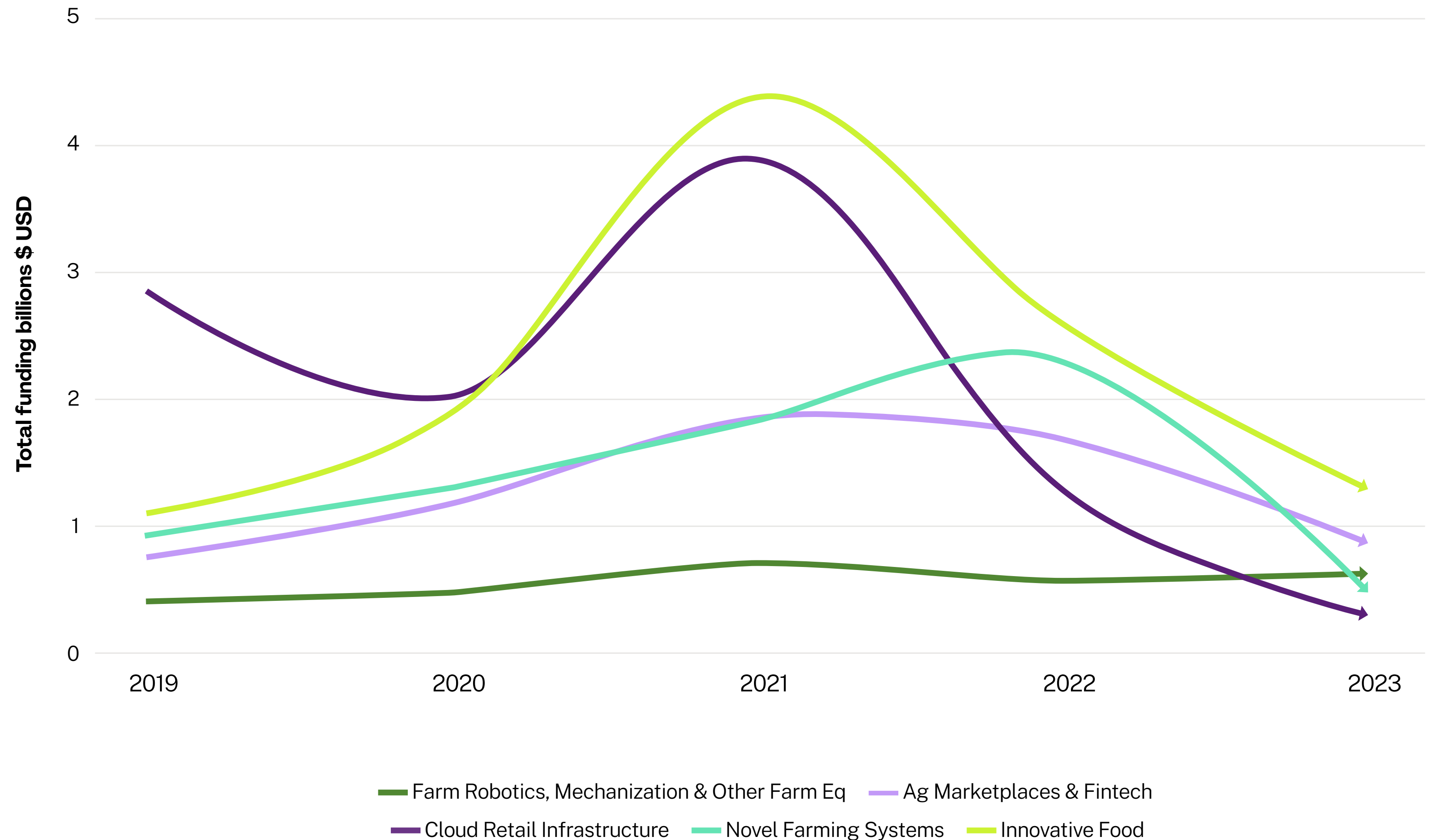
Investments by category

2019-2023 (\$ USD)

Farm Robotics, Mechanization & Equipment has been on a slow but steady upward trajectory over the past five years. Funding for eGrocery continued its precipitous decline, dropping from \$4.8bn in 2022 to \$1.9bn in 2023.

Some upstream categories captured new investor interest in the wake of the decline in downstream investment and increasing climate tech interest but they couldn't weather the overall downturn.

5 years of funding in five select categories



Changes in category investment

2022 vs 2023

Ghost kitchens (industrial kitchens built to make food for pick-up or delivery) attracted a surge of investment during the pandemic but spent 2023 revising business plans and laying off staff. Within eGrocery, meanwhile, funding and deal numbers have been in sharp decline, with the rapid grocery delivery market (think GoPuff and Getir) under particular pressure as consumers have returned to shopping in person post the pandemic and competition has heated up, prompting key players to scale back operations and tweak their business models.



- Upstream
- Midstream
- Downstream

Changes in deal count from 2022-2023



Farm tech spotlight

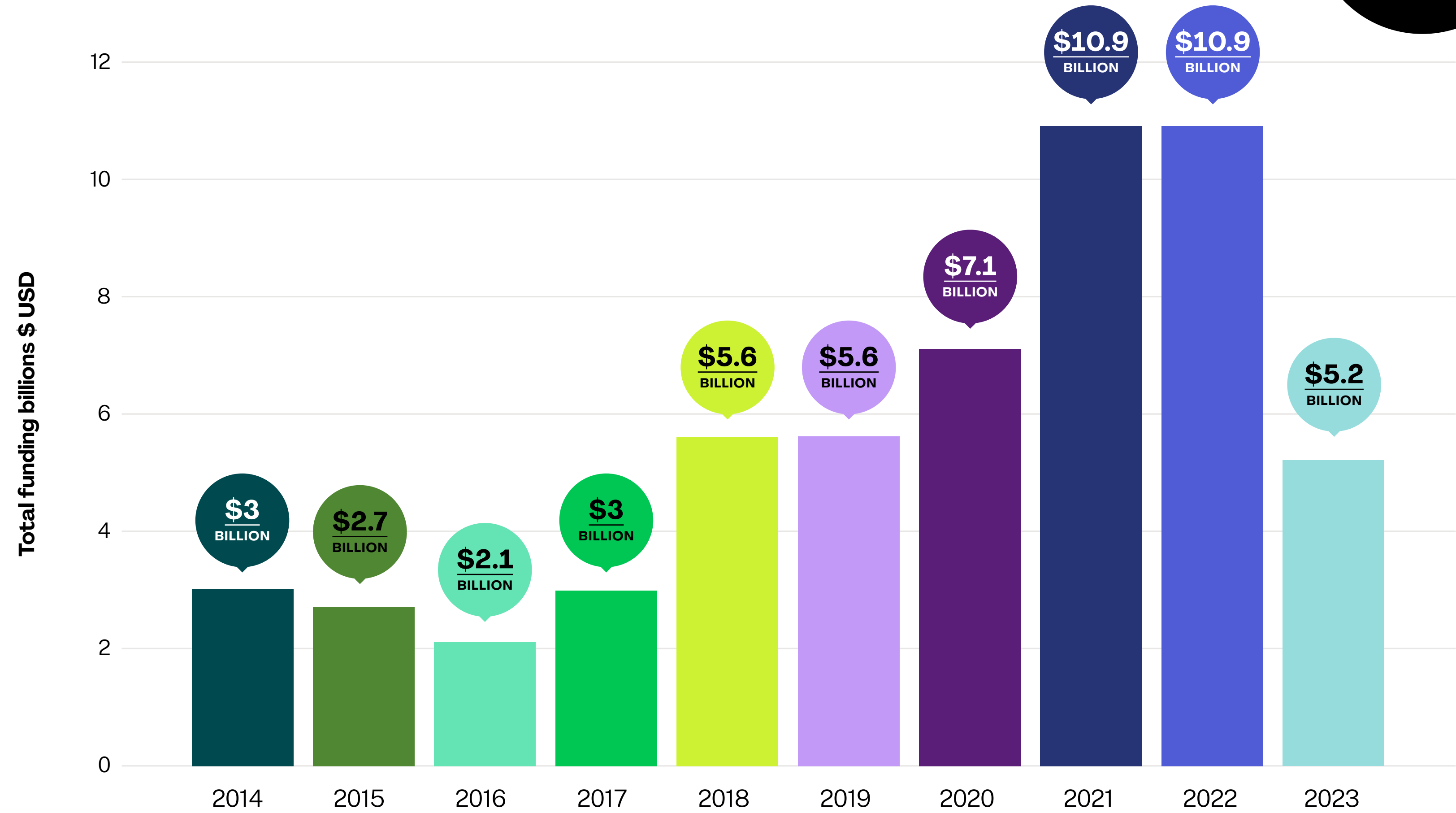
Funding by year (\$ USD)

Farm tech investment reached its lowest point in six years in 2023 with a nearly 50% year-over-year decline. Buoyed in 2022 by its strong links to climate tech--most innovations by their nature have a climate mitigation or adaptation angle in their focus on improving farming efficiencies--the category could not hold up against the severe market correction facing venture capital globally. The US was particularly badly hit; investment in farm tech in North and South America dropped 68% year-over-year.

Farm Tech Investment

(\$ USD)

10YR
TOTAL
\$56.1
BILLION



Farm tech spotlight

Investment by category 2023

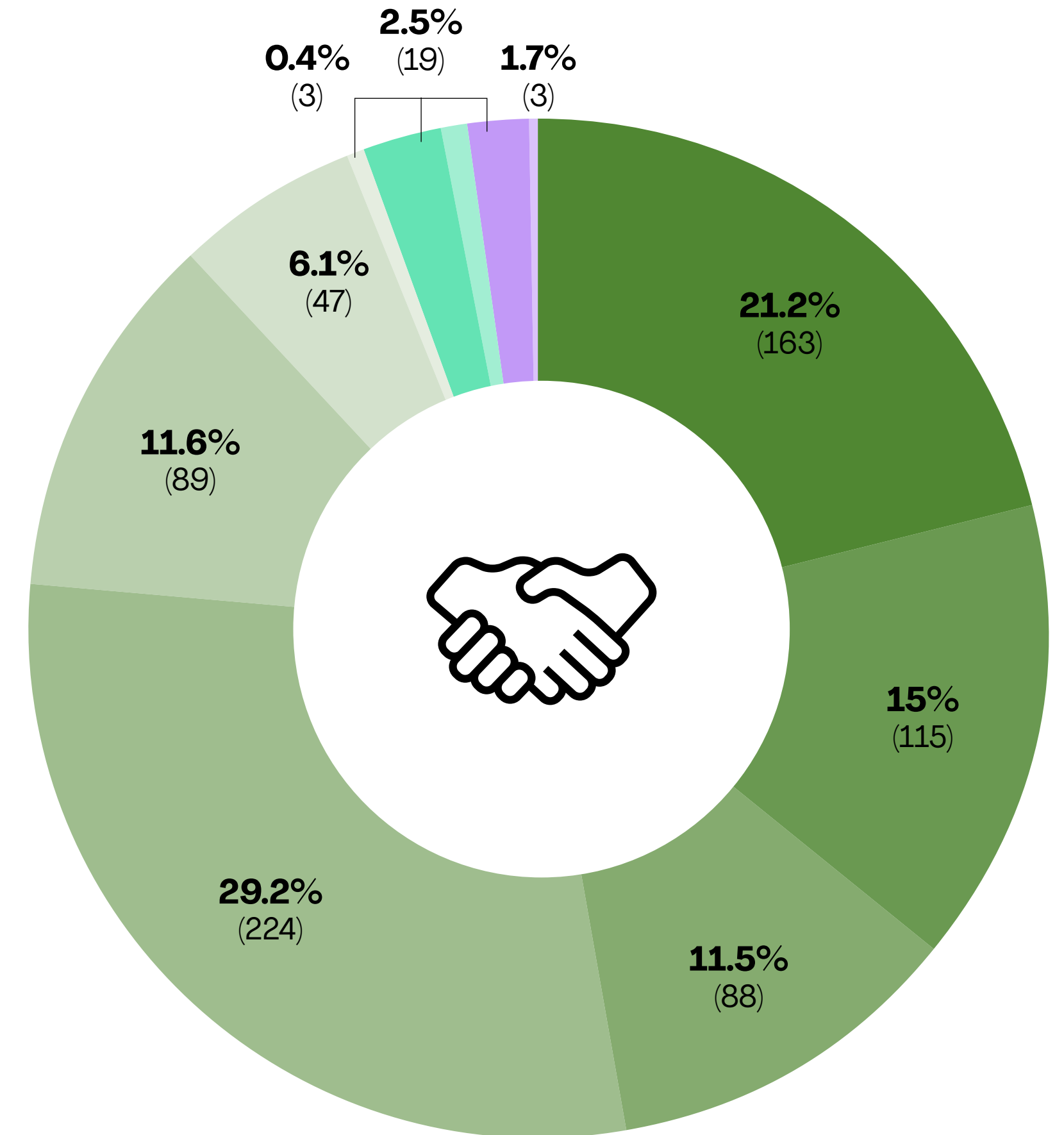
768 deals
in farm tech 2023

\$5.2 billion
\$USD investment
in farm tech 2023

Categories by funding (\$ USD)

Category	\$ USD	Deals
● Ag Biotechnology	1.7b	163
● Ag Marketplaces & Fintech	824m	115
● Farm Robotics, Mechanization & Equipment	751m	88
● Farm Management Software, Sensing & IoT	659m	224
● Novel Farming Systems	553m	89
● Bioenergy & Biomaterials	503m	47
● Innovative Food	10m	3
● Midstream Technologies	51m	19
● Miscellaneous	12.2m	8
● Farm-to-Consumer eGrocery	166m	13
● Home Grow Systems	630k	2

Investment by deal count

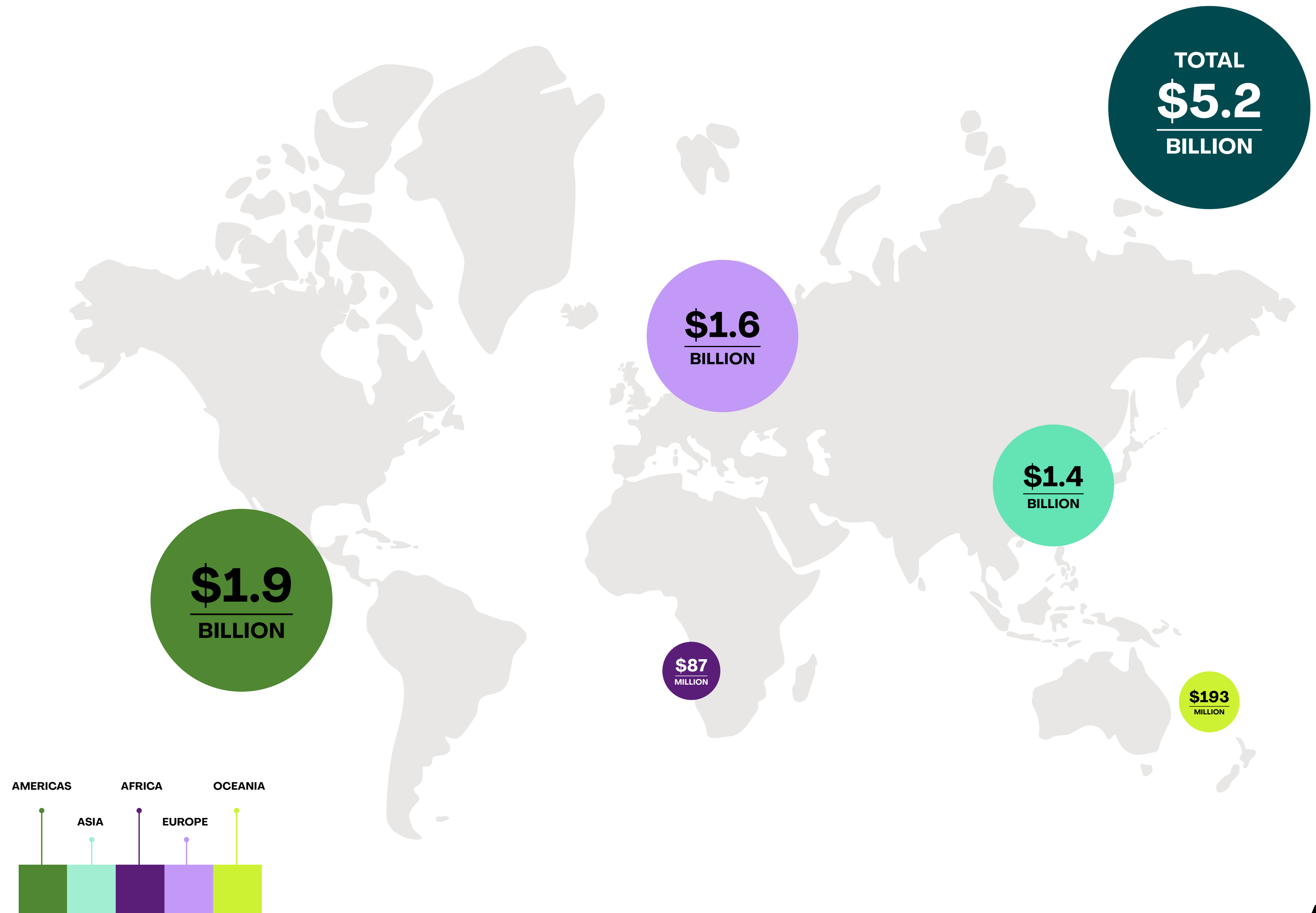


- Upstream
- Midstream
- Downstream

Farm tech spotlight

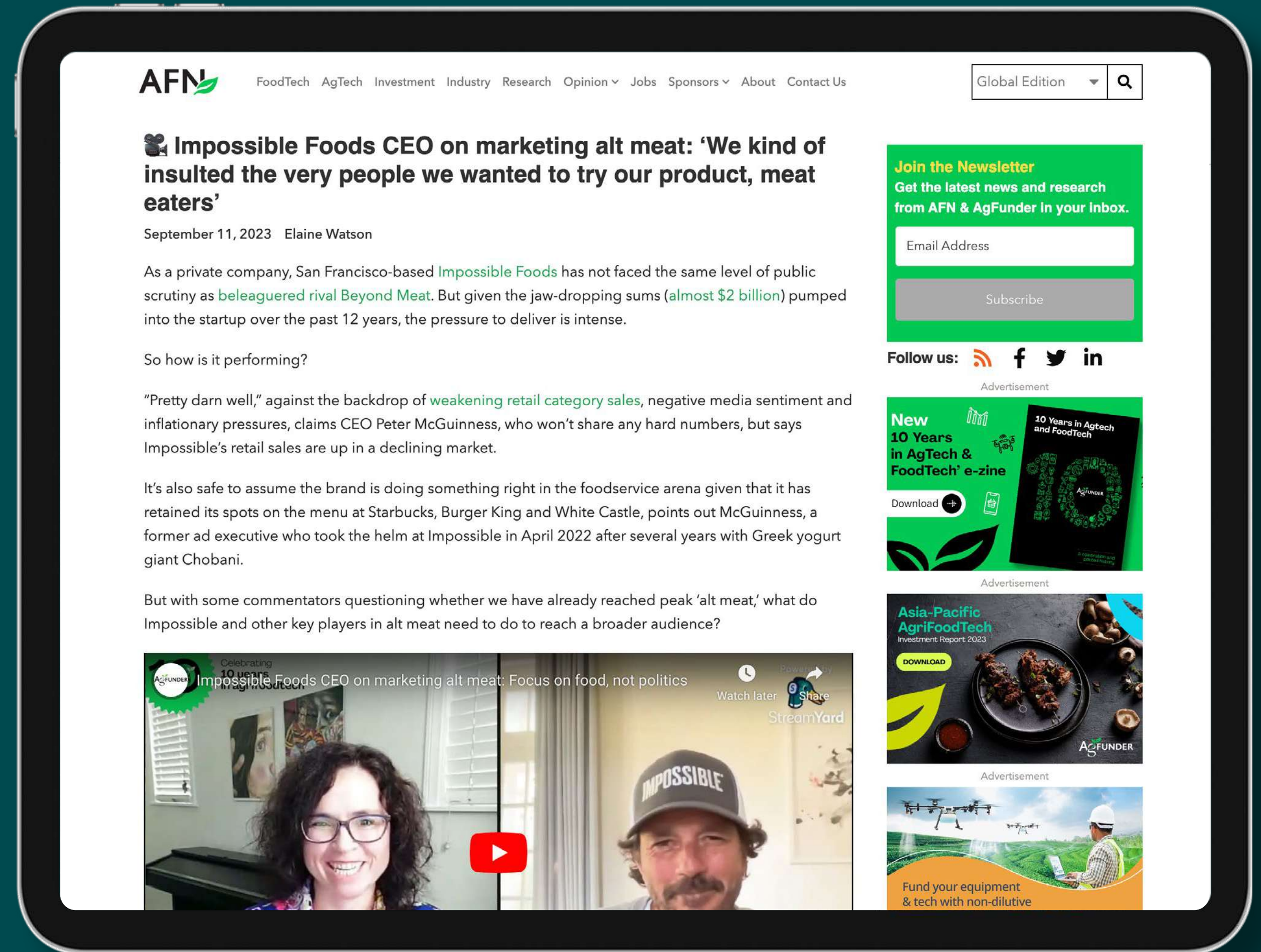
Top countries (\$ USD)

Europe's farm tech scene held up relatively well compared to other regions, declining just 16% year-over-year compared to the Americas which dropped 68%, Asia 46% and Africa 77%. While still a very small market, Oceania farm tech startups raised 141% more funding in 2023 than 2022.



Top read AgFunderNews articles of 2023

- ❖ Impossible Foods CEO: 'I feel good about where we are, I do not feel good about where the category is'
- ❖ Alphabet brings agtech startup out of stealth with data from 10% of world's farmland, 3 major customers
- ❖ Keep calm and carry on: Navigating the trough of disillusionment for plant-based meat
- ❖ Cultivated meat startup New Age Eats makes 'painful decision' to shut down: 'We've been unable to attract investment'
- ❖ Fifth Season's former VP on why it failed and how vertical farming must change
- ❖ Crunch time for cultivated meat: 'Probably 70-90% of players will fail in the next year'
- ❖ 10 years in indoor ag: After a decade of tough lessons, indoor ag nears 'the plateau of enlightenment'



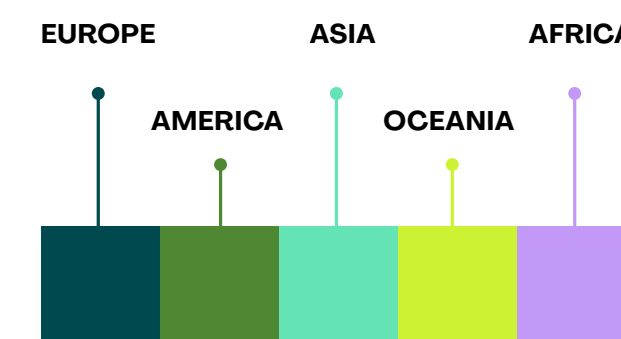
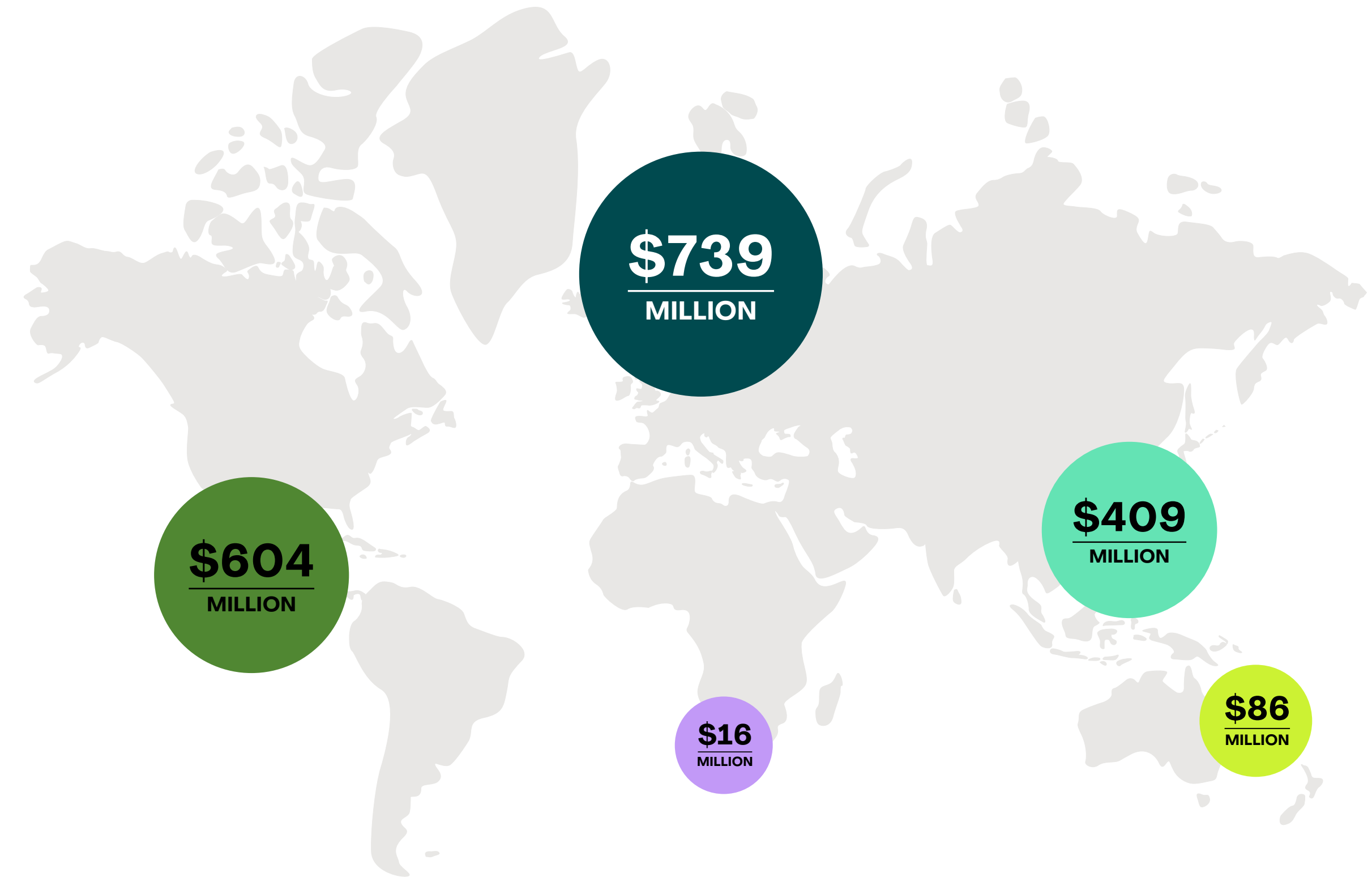
Ag Biotechnology



2023 Funding by region (\$ USD)



Investment in ag biotechnology (which spans everything from animal health, breeding and feeding, to in-ovo egg sexing tech, biostimulants and biopesticides) fell 34% to \$1.9 billion in 2023 against a backdrop of a 49.2% drop in agrifoodtech funding overall. The biggest check (\$325 million) went to Swiss green nitrogen co Atlas Agro.







Ag Biotechnology



Top deals 2023 (\$ USD)

Two seed-stage startups to watch include Hyfé, a US-based firm transforming food processing wastewater into feedstocks for biomanufacturing; and Australia-based Rumin8, which is building a biomanufacturing platform for bromoform, a substance in red seaweed shown to reduce methane emissions in livestock.




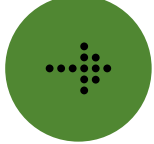
01		Atlas Agro
	\$325 million	LATE 


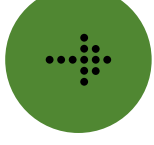
02		Biobest
	\$129 million	LATE 

03		Locus Fermentation Solutions
	\$117 million	DEBT 

04		KingAgroot
	\$87 million	SERIES A 

05		Aphea.bio
	\$77 million	SERIES C 

06		LoamBio
	\$73 million	SERIES B 

07		SuperBAC
	\$62 million	LATE 

08		Shiji Biotechnology
	\$55 million	SERIES A 

Startup spotlight

Nium

AG BIOTECHNOLOGY



Nium is a team of scientists, entrepreneurs and engineers from Cambridge, UK on a mission to eliminate the emissions associated with the production of fertilizers, used for 50% of the world's food production. Nium has developed novel nanotechnology with its 'Mighty Minion,' a reactor that synthesizes clean ammonia, on demand, to replace the polluting Haber-Bosch process and is working towards a cleaner future for food and fuel.



 wearenium.com

What agrifood challenges are you trying to solve and how?

A century ago, ammonia saved our world. It can save us again today, but it shouldn't cost us the earth. Ammonia is the precursor to 50% of global food production. There's one big problem though. The ammonia economy is dirty; responsible for 450 megatonnes worth of annual carbon emissions. To put that into context, that's roughly 1.35 times more carbon dioxide than the entire UK. Enter the Mighty Minion, a reactor synthesizing clean ammonia on demand at low pressures and temperatures. It can work on any site and scales to meet

local requirements. It is the key to decentralising, decarbonising and de-risking the ammonia supply chain. We can eliminate fertilizer emissions, which account for nearly 2% of global CO2 emissions.

How have you weathered the current venture capital downturn?

It has been a combination of factors. Firstly, our supportive investors, **AgFunder** and **DCVC**. We have also been mentored and supported by the **BMW foundation** and **Octopus Ventures**, who have provided mentorship, coaching and guidance. The value of being surrounded by people who have done this before cannot be understated. We are also looking at commercial deployment a lot sooner than most hard tech and climate tech investments. Finally, the urgency of the climate emergency and the far reaching potential of our product speak for themselves. These have been a catalyst for the support we have received to date.

What does 2024 have in store for you?

We kicked off the year by moving into our brand new, purpose built, lab facility near Oxford. We have signed MOU's with ammonia offtake and hydrogen partners and are looking forward to pilots with these partners in the second half of this year.



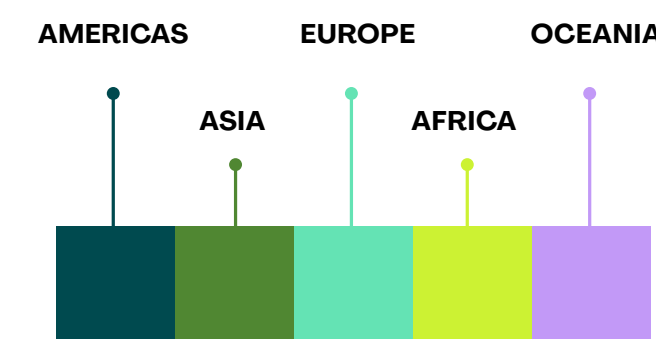
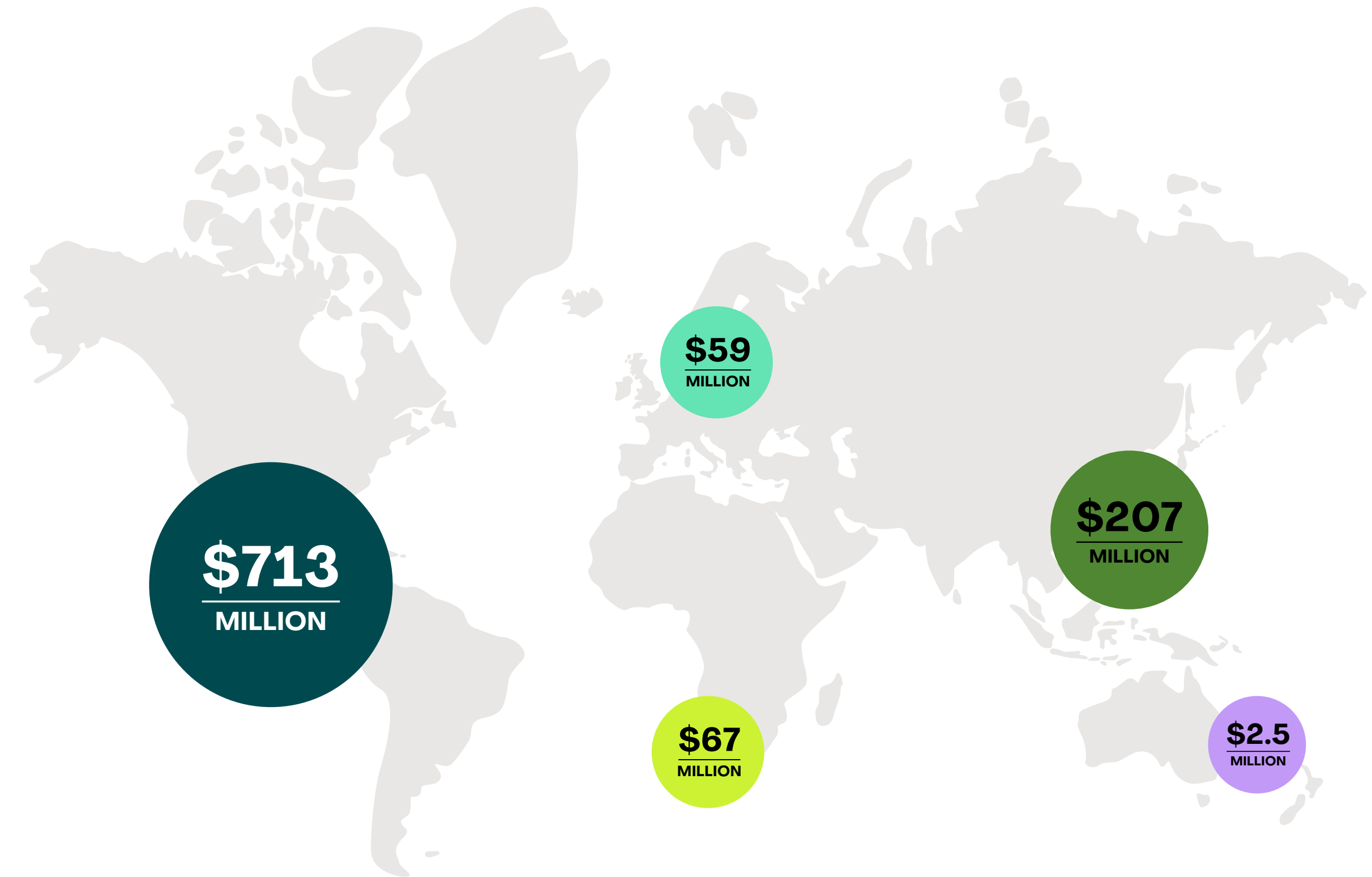
Ag Marketplaces & Fintech



2023 Funding by region (\$ USD)



The Americas once again led this category, though unsurprisingly, investment to that region was down 22% compared to the previous year. Deal count also declined from 67 in 2022 to 51 in 2023. Asia — another leading market for the category — saw an even larger decline of 67% from 2022.





Ag Marketplaces & Fintech



Top deals 2023 (\$ USD)


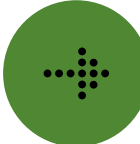
Africa and Asia both saw declines in investment in 2023. That said, agribusiness marketplaces and access to financial tools are becoming hugely important to farmers' livelihoods in these regions (as well as in Latin America). While dollar amounts may be down, it is encouraging to see Kenya-based food distribution startup Twiga; India's Vegrow, which makes digital payment tech for farmers; and Brazil-based agrifintech platform Nagro land in the top rounds.



Other notable rounds included a \$14.4 million debt round for Cultivo, which offers credit for coffee producers, and a \$35 million debt round for Mexico agrifintech platform Verquor.



01	 Indigo	\$250 million	LATE	
----	--	----------------------	------	---

02	 Xpansiv	\$125 million	LATE	
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03	 Silo	\$100 million	DEBT	
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04	 Vegrow	\$46 million	SERIES C	
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05	 Nagro	\$40 million	DEBT	
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06	 Twiga Foods	\$35 million	DEBT	
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07	 Silo	\$32 million	SERIES C	
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08	 GrainChain	\$29 million	SERIES C	
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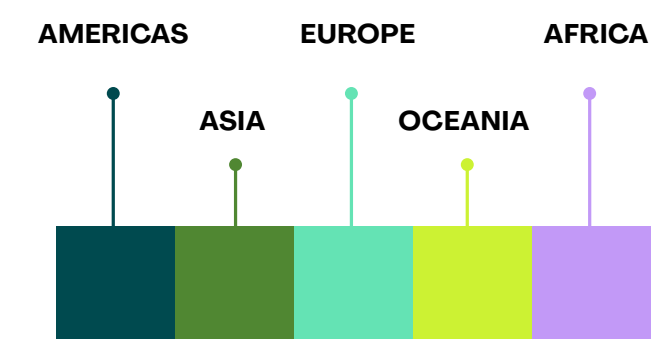
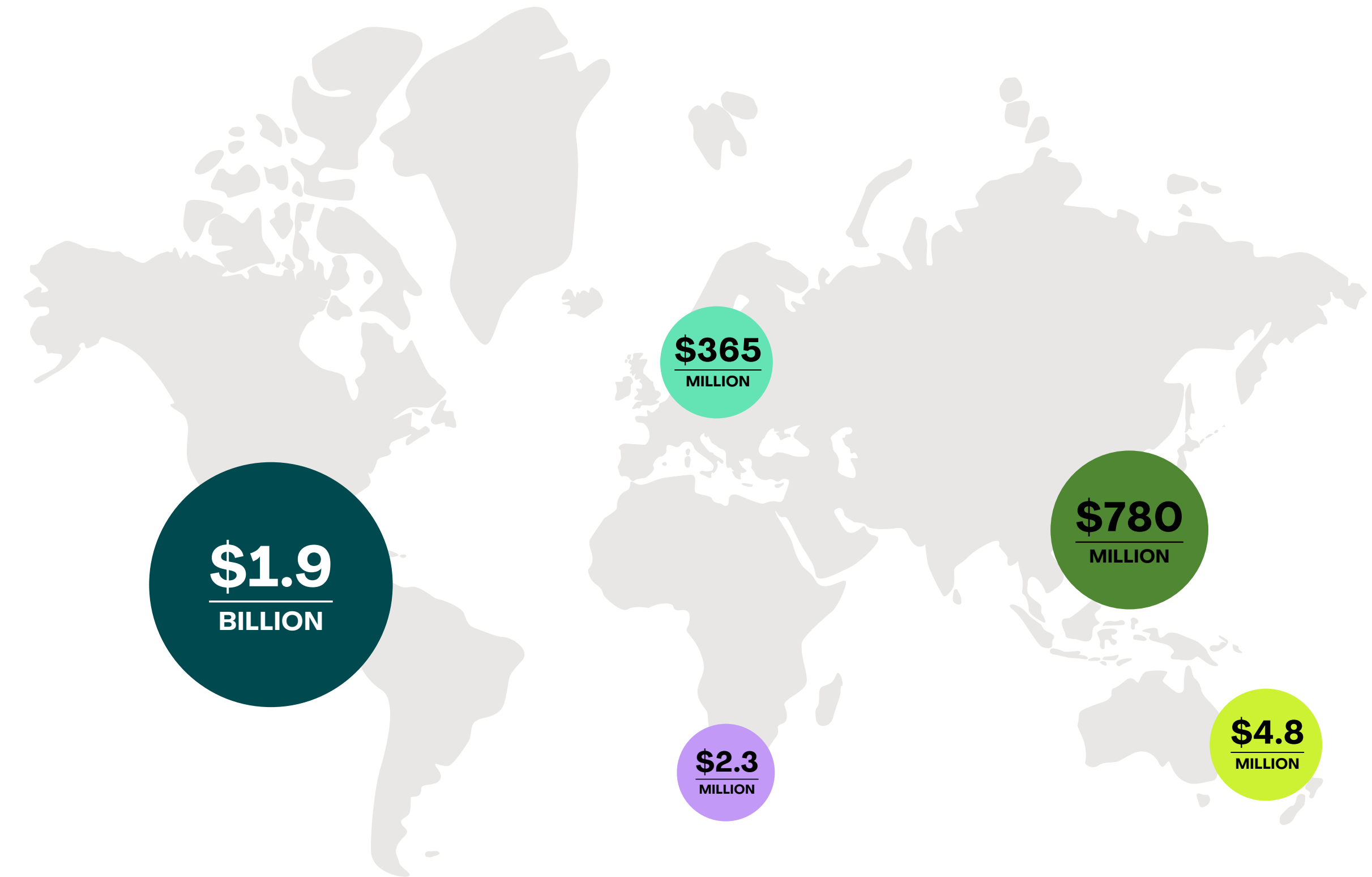
Bioenergy & Biomaterials



2023 Funding by region (\$ USD)



The biggest category in agrifoodtech in 2023, Bioenergy & Biomaterials raked in \$3 billion in 2023, a 20% increase vs 2022. The topline figure was bolstered by an \$830 million mega-round for US-based Footprint, which makes molded fiber products that can be recycled or composted, but have the kind of barrier properties firms expect from plastic (warding off moisture, oil, and vapor).





Bioenergy & Biomaterials

Top deals 2023 (\$ USD)

In 2023 sizable seed investments went to US-based waste remediation startup Adar Technologies; Germany-based synbio firm Cambrian; and Danish startup Chromologics, which produces vibrant red pigments via precision fermentation.



01  **Footprint**


\$830 million	SERIES B 
----------------------	--


02  **EcoCeres**


\$400 million	LATE 
----------------------	--


03  **Cambrian Innovation**


\$200 million	LATE 
----------------------	--


04  **Yufunian**

\$140 million	SERIES A 
----------------------	--


05  **Charm Industrial**


\$100 million	SERIES B 
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06  **Coffee Cherry**

\$100 million	LATE 
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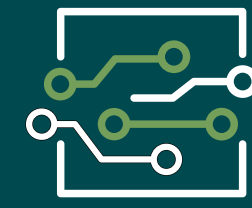
07  **Evozyne**

\$81 million	SERIES B 
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08  **NEXT Renewable Fuels**

\$75 million	LATE 
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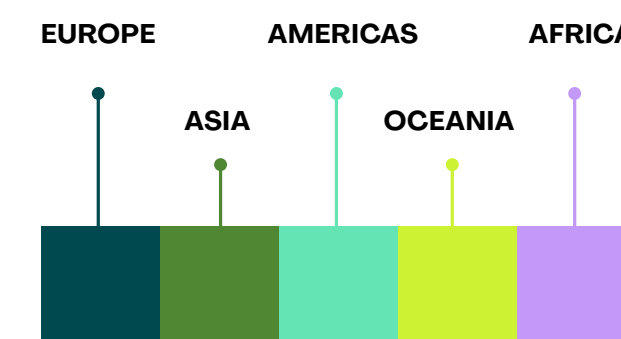
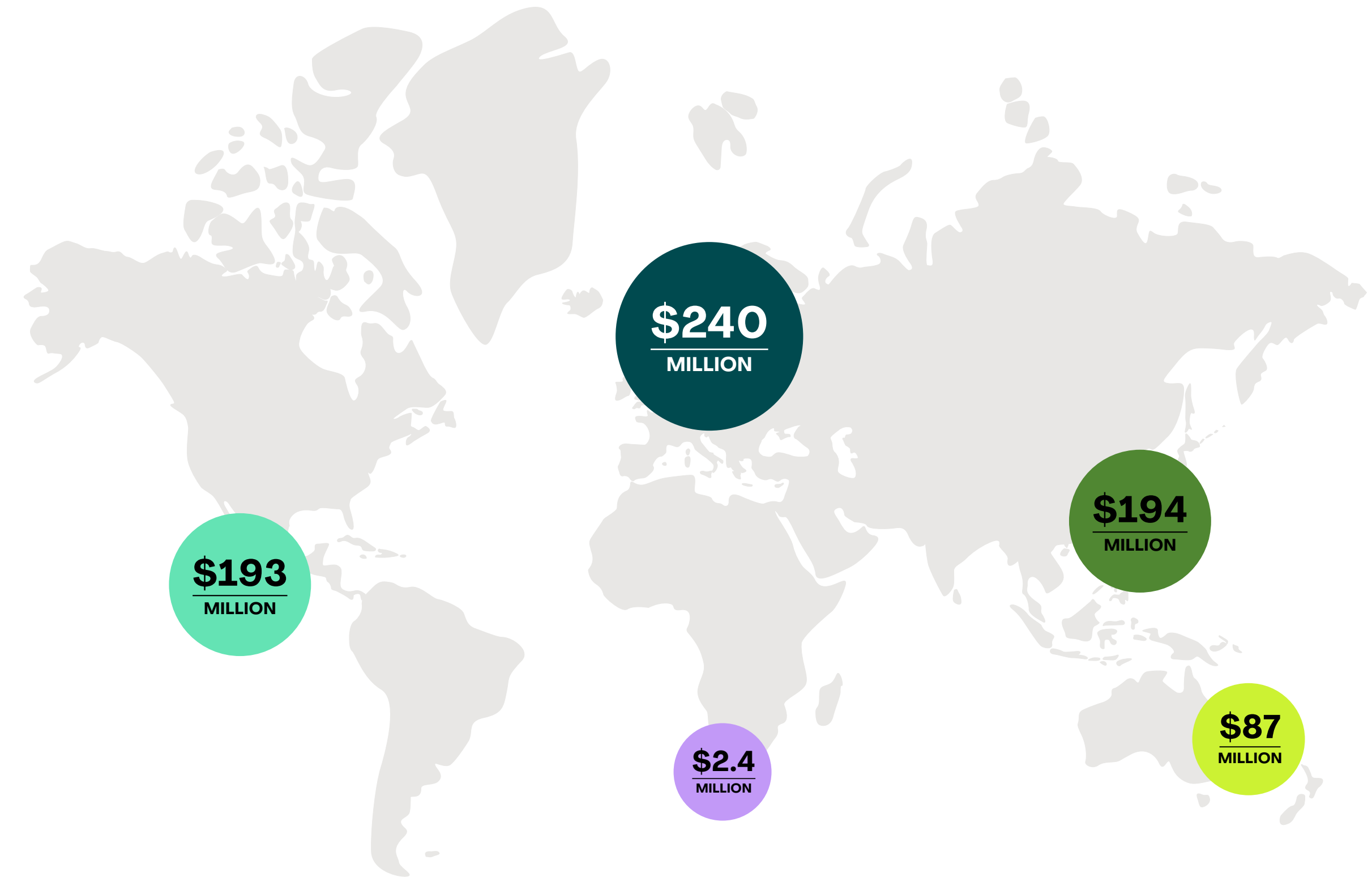
Farm Management Software, Sensing & IoT



2023 Funding by region (\$ USD)



The Farm Management category, which includes most precision ag tools as well as operations management software, declined from \$1.7 billion in 2022 to \$716 million in 2023. While the Americas led the category in 2022, Europe sped ahead in 2023, with startups on the continent raising \$240 million over 73 deals. Asia was far behind the Americas for funding in 2022, taking an equal share of funding dollars for this category in 2023.

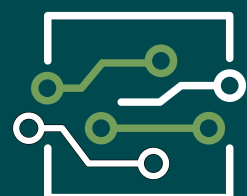


Farm Management Software, Sensing & IoT

Top deals 2023 (\$ USD)

Many of the top rounds went to technologies dealing with soil carbon data (e.g. Agreena) and crop management (e.g. Greenlabs & CropX). However, the top spot went to Australia's Halter, which makes precision tools for livestock management — specifically dairy farming.

Another livestock-management platform, US-based Vytelle, raised \$20 million, while Indonesia's JALA, which raised \$16 million, offers precision ag technologies for shrimp farming, which is a significant source of livelihood in Southeast Asia.





01  **Halter**

\$53 million	SERIES C 
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02  **Agreena**

\$50 million	SERIES B 
---------------------	--

03  **Greenlabs**


\$39 million	DEBT 
---------------------	--


04  **Orbem**

\$32 million	SERIES A 
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05  **CropX**

\$30 million	SERIES C 
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06  **EarthOptics**

\$28 million	SERIES B 
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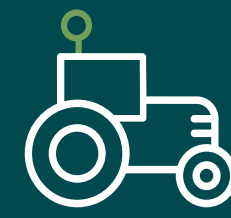
07  **Source.ag**

\$23 million	SERIES A 
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08  **Hydrosat**

\$23 million	SERIES A 
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Farm Robotics, Mechanization & Other Equip.

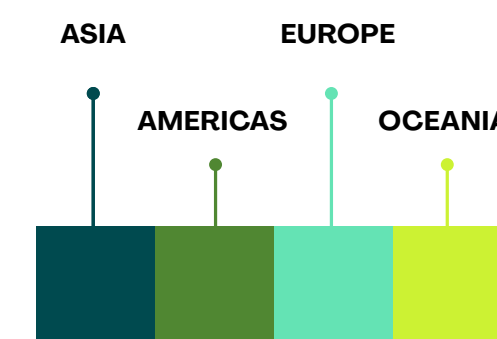
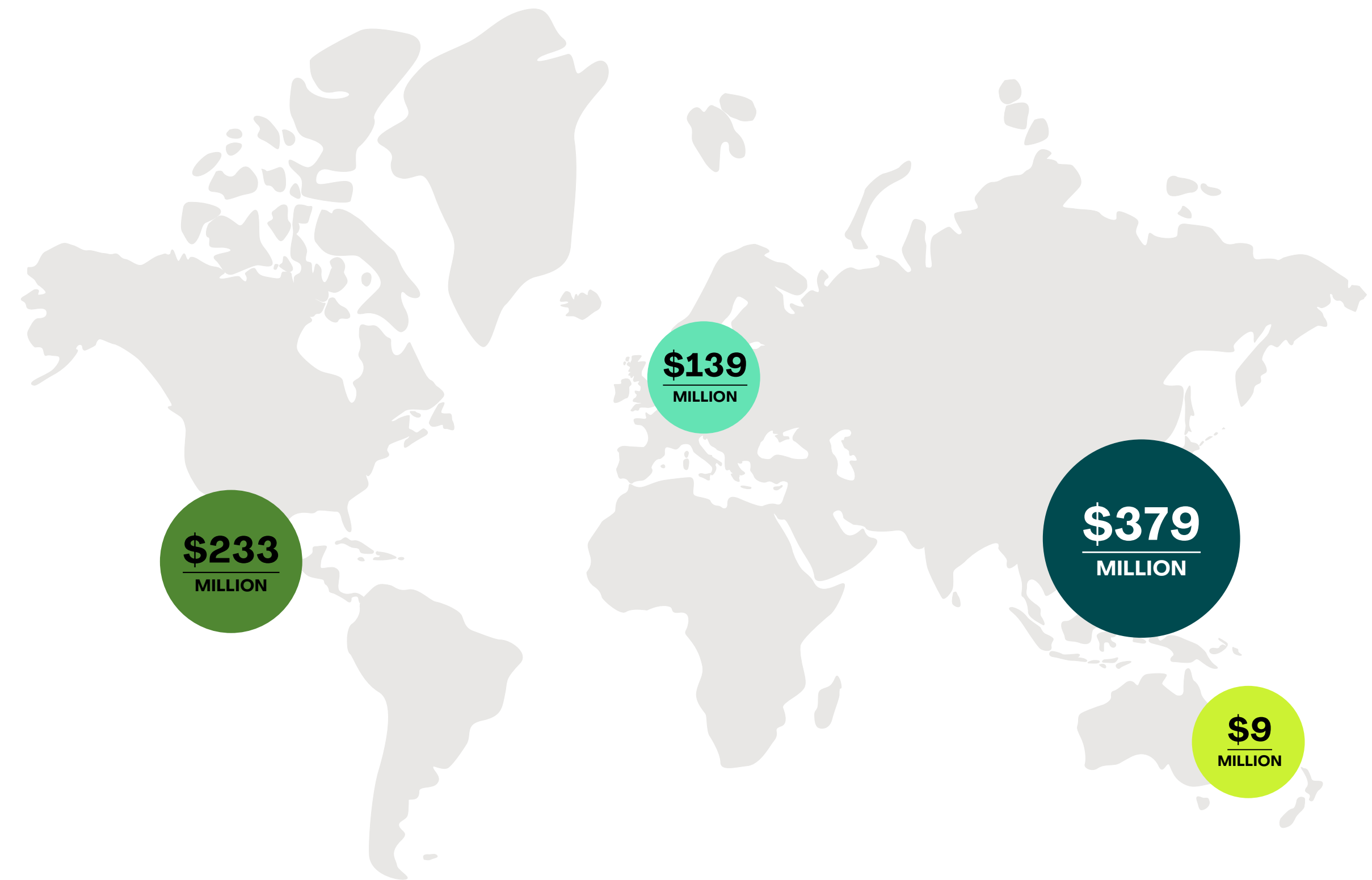


2023 Funding by region (\$ USD)



Farm Robotics is far more vast than the autonomous tractors and harvesting 'bots the category typically calls to mind. Asia's lead in 2023 underscores this: its \$379 million raised by startups is largely thanks to two raises by Indonesia's eFishery, which automates processes for fish and shrimp farmers.

The Americas, which held the top place for investment dollars in 2022, saw less funding for Farm Robotics in 2023 but over a few more deals than in Asia: 37 and 31, respectively.



Farm Robotics, Mechanization & Other Equip.

Top deals 2023 (\$ USD)

For the second consecutive year, eFishery held the top deal with a \$200 million Series D that took place across two rounds. Other notables included deals for drones (Percepto), precision spraying (Ecorobotix) and precision irrigation (N-Drip).

Elsewhere, Agtonomy, which “uplifts” tractors to make them autonomous, raised \$22 million, as did drone manufacturer Wingtra. Zordi raised \$20 million for its modular robotic greenhouse platform, and AgFunder portfolio company Aigen landed \$12 million for its fleet of solar-powered field robots.



01  **eFishery**


\$108 million	SERIES D 
----------------------	--

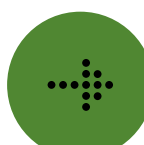
02  **eFishery**

\$92 million	SERIES D 
---------------------	--

03  **Percepto**


\$67 million	SERIES C 
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04  **Ecorobotix**

\$52 million	SERIES C 
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05  **N-Drip**


\$44 million	SERIES C 
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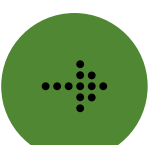
06  **Carbon Robotics**

\$43 million	SERIES C 
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07  **Sollum Technologies**

\$25 million	LATE 
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08  **Ecozen**

\$25 million	SERIES C 
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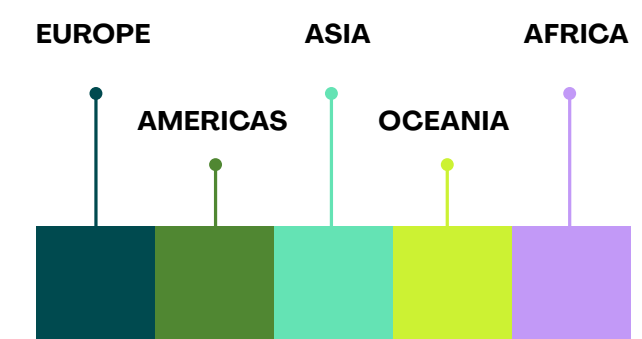
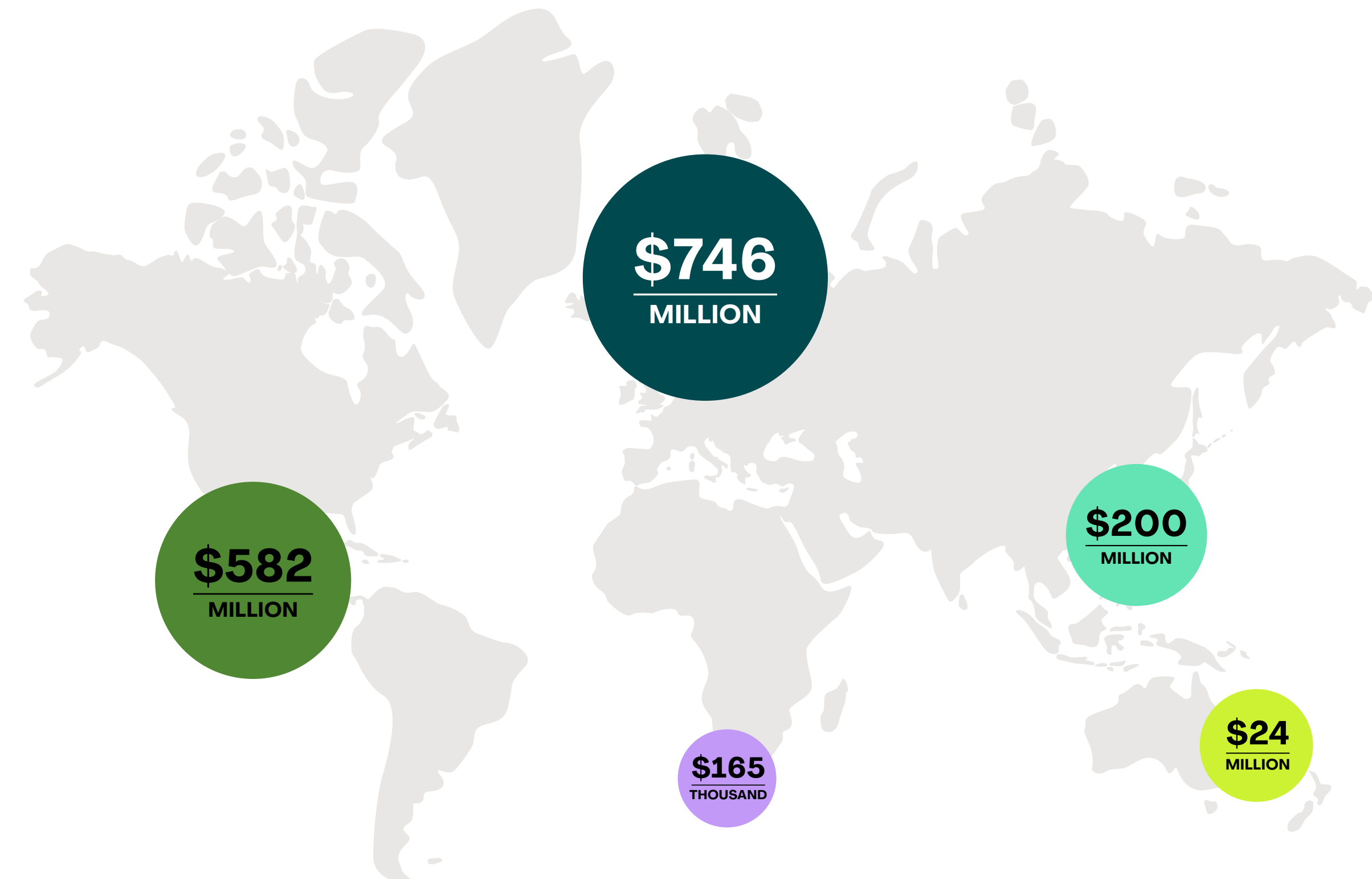
Innovative Food



2023 Funding by region (\$ USD)



Funding for this category fell 51% to \$1.6bn in 2023, while deal count fell a more modest 19%, with the big checks going to alternative protein startups in 2021 and early 2022 replaced by smaller sums going to a broader range of firms in everything from sugar reduction tech (Incredo, Bonumose) to meal replacements (yfood Labs, Huel).





Innovative Food

Top deals 2023 (\$ USD)

One segment to watch closely in 2024 is cultivated meat, which attracted just \$177 million in 2023 with the top three – pretty modest – checks going to Meatable (\$35 million series B), BlueNalu (\$33.5 million series B) and Uncommon (\$30 million series A). Meanwhile, the best-funded player (UPSIDE Foods) hit pause on plans to build a large-scale commercial site in Illinois; GOOD Meat was sued by its bioreactor supplier over allegedly unpaid bills; Finless Foods made big cutbacks; and New Age Eats shut up shop after running out of cash.



01  **yfood Labs**

\$229 million	SERIES C 
----------------------	--


02  **Huel**

\$83 million	SERIES C 
---------------------	--

03  **Ripple Foods**

\$49 million	LATE 
---------------------	--

04  **DAIZ**

\$48 million	SERIES C 
---------------------	--

05  **L Nutra**

\$47 million	SERIES D 
---------------------	--

06  **ENOUGH**

\$44 million	SERIES C 
---------------------	--

07  **No Meat Factory**

\$42 million	SERIES B 
---------------------	--

08  **Bonumose**

\$35 million	SERIES C 
---------------------	--

Startup spotlight

Rarebird

INNOVATIVE FOOD & BEVERAGES



Rarebird makes **Px coffee**. It's coffee, but better. Instead of caffeine, our patented coffee contains Px, the world's first caffeine replacement. Rarebird's coffee tastes and is brewed like any other; the difference is in how you feel. Compared to regular coffee, people who've switched to Px feel better during the day and sleep better at night.

RAREBIRD™

rarebird.coffee

What agrifood challenges are you trying to solve and how?

Following water, coffee is the most consumed beverage in the United States, and caffeine, the active ingredient that gives coffee its spark, is the most consumed drug globally. The issue with caffeine is it magnifies feelings of stress and anxiety – that jittery, wired feeling – and it persists in the body for a long time, negatively affecting sleep quality.

Rarebird replaces the caffeine in coffee with Px, an active metabolite of caffeine that doesn't come with caffeine's negative side effects. It's metabolized by your body

faster so it's less likely to affect sleep quality. It also doesn't leave you feeling jittery and stressed out. In short, it's coffee that is better for your mental wellbeing.

How have you weathered the current venture capital downturn?

We returned to business fundamentals and have focused our time and effort on the core aspects of the business. When capital was abundant, you had the ability to pursue projects with longer term returns, where now it's about doing what needs to be done to make the business profitable.

What does 2024 have in store for you?

We're excited to introduce Px coffee to more people! It won't happen in 2024, but our goal is for you to walk into any coffee shop in the US and see Px coffee on the menu board.

*Want to try Rarebird?
Buy it online here.*

“ We invested in Rarebird because we saw an opportunity to improve a drink loved by over 2 billion people daily. **”**

Rob Leclerc
Founding Partner, AgFunder



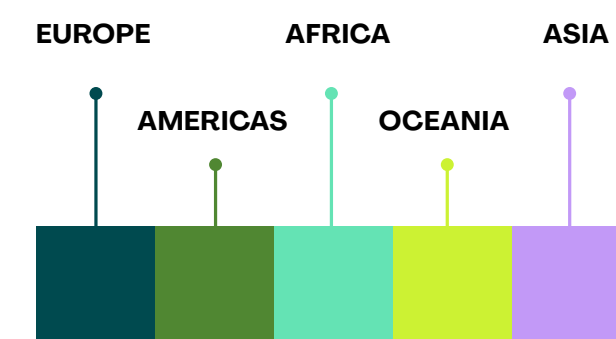
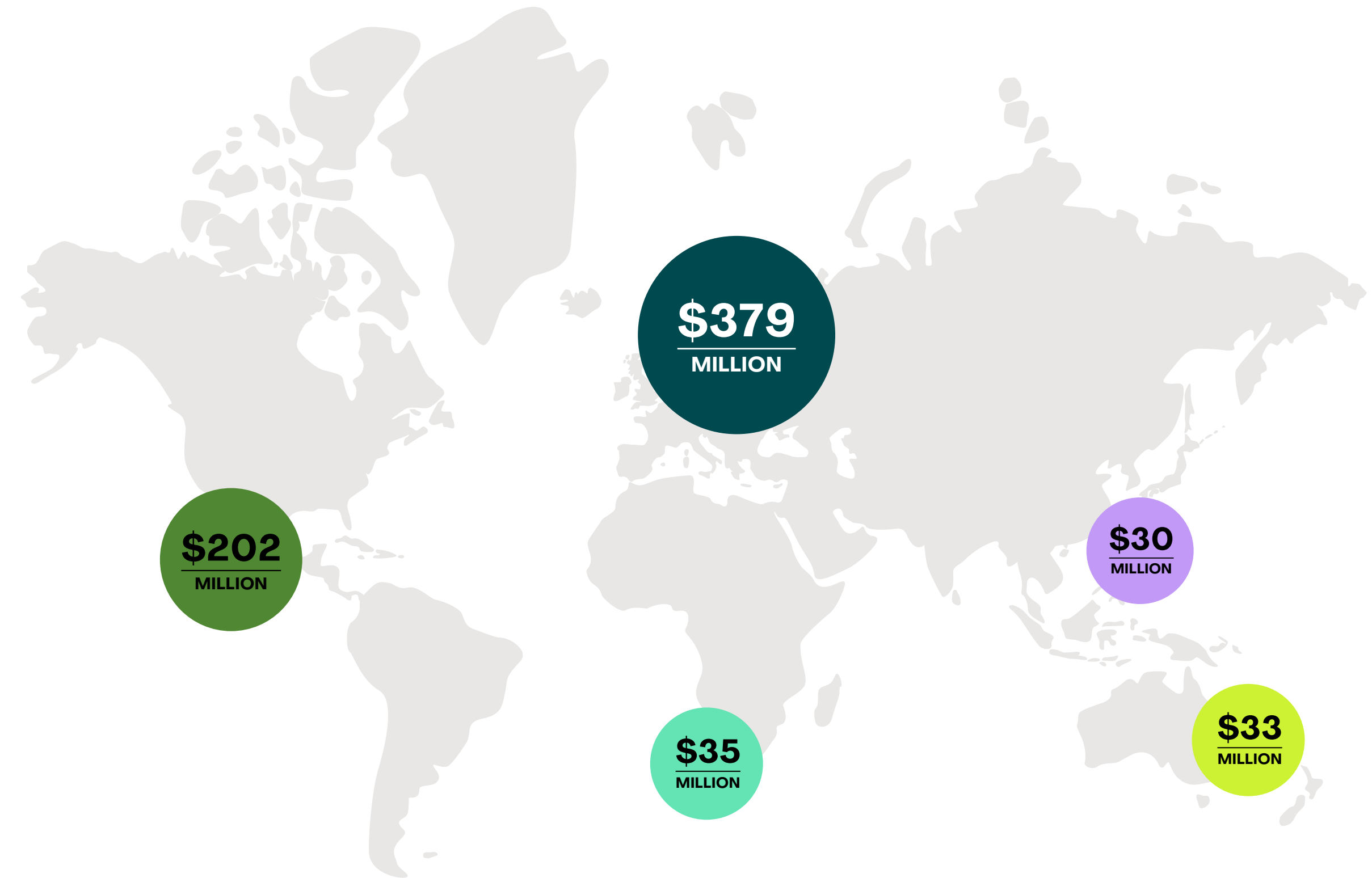
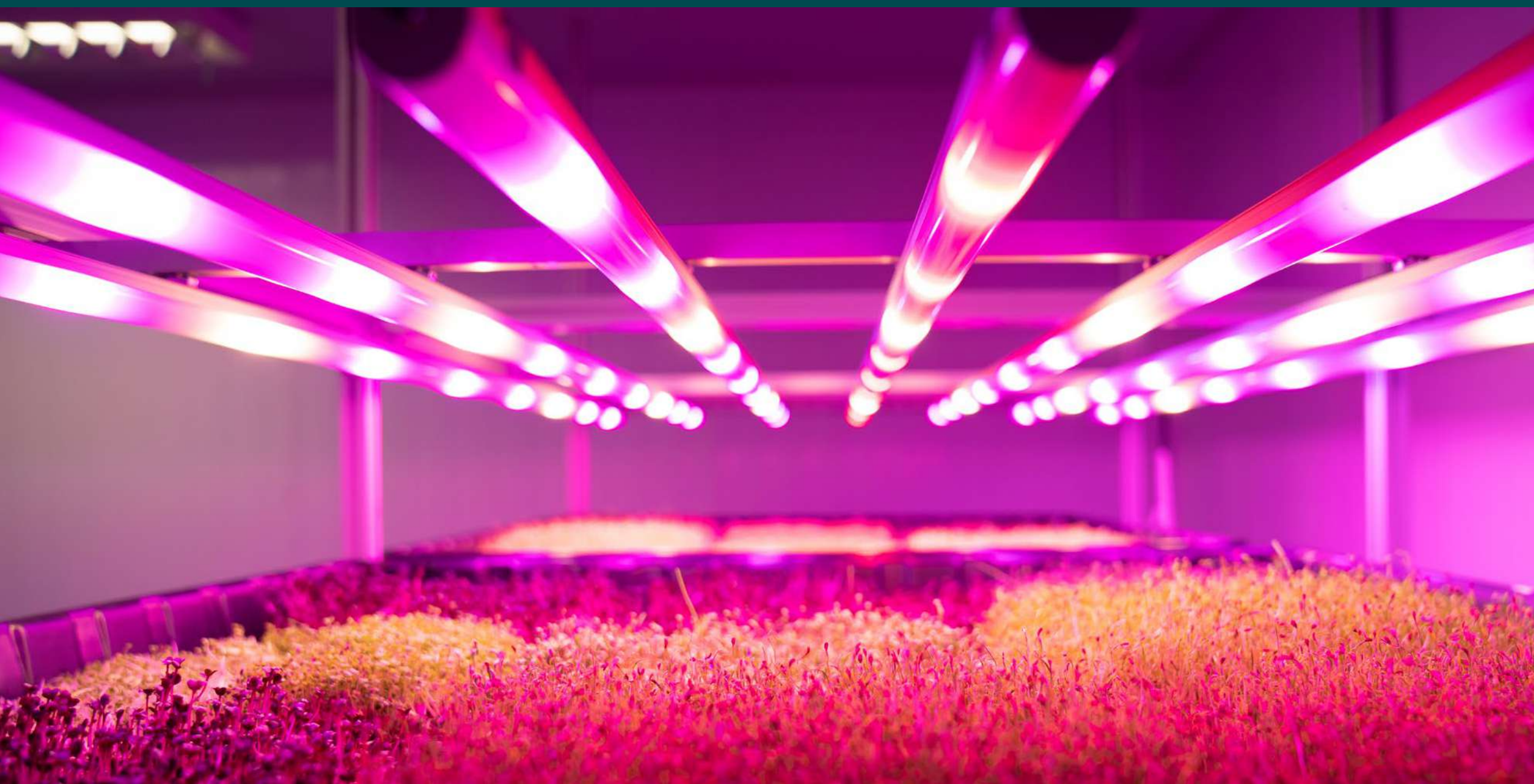
Novel Farming Systems



2023 Funding by region (\$ USD)



Funding for Novel Farming Systems fell off a cliff in 2023, with startups attracting just \$680 million in 2023 a 75% drop on 2022 levels, as jaundiced investors saved their capital for models with proven unit economics and financial returns. However, not all such bets paid off. Several companies that secured funding in 2023 headed into bankruptcy proceedings in the same year (Lemnature AquaFarms, AeroFarms); while others (Ÿnsect) laid off staff and restructured in a bid to accelerate profitability. The bankruptcies have continued in 2024, such as Smallhold.





Novel Farming Systems


Top deals 2023 (\$ USD)

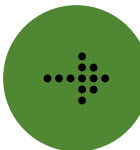
Despite the flood of bankruptcies, layoffs, and grim headlines in 2023, several players raised some sizable sums, with Protix netting \$61 million from Tyson Foods to build a new insect farming facility in the US; and GoodLeaf Farms and Planet Farms securing \$58 million and \$40 million respectively to expand their vertical farming operations for leafy greens.



01  **Ynsect**

\$175 million	SERIES D 
----------------------	--

02  **AeroFarms**

\$71 million	LATE 
---------------------	--

03  **Protix**

\$61 million	LATE 
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04  **GoodLeaf Farms**

\$58 million	DEBT 
---------------------	--

05  **Planet Farms**

\$40 million	SERIES B 
---------------------	--

06  **Victory Farms**

\$35 million	SERIES B 
---------------------	--

07  **CH4 Global**

\$29 million	SERIES B 
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08  **Stacked Farm**

\$27 million	SERIES A 
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Startup spotlight

Goterra

NOVEL FARMING SYSTEMS



Goterra is revolutionizing waste management in the agrifood sector with innovative, sustainable solutions. By harnessing the power of maggots and robotics, Goterra transforms food waste into valuable protein and soil conditioner, tackling environmental challenges and contributing to a circular economy.



 goterra.au

What agrifood challenges are you trying to solve and how?

In addressing agrifood challenges, Goterra focuses on two main issues: food waste management and sustainable protein production. Our unique approach uses maggots in modular systems to process organic waste on-site, or as close to the source of waste as possible. This method not only reduces greenhouse gas emissions by 97% versus landfill, but also creates high-quality protein for animal feed and a nutrient-rich soil conditioner (frass). By converting waste into resources, we're contributing to a more sustainable agrifood system.

How have you weathered the current venture capital downturn?

The recent venture capital downturn has been challenging, but Goterra's resilience lies in our innovative business model and the growing recognition of the importance of sustainable waste management. Our partnerships with key stakeholders, including venture capitalists but also collaboration with research institutions like **CSIRO** and **Deakin University**, have been pivotal. We've focused on optimizing our operations and demonstrating the tangible environmental and economic benefits of our solution to maintain investor confidence and attract potential funding.

What does 2024 have in store for you?

Goterra is set for significant expansion. Our goal is to increase our waste processing capacity, further reducing negative environmental impacts. We plan to introduce our innovative waste management systems in new markets, both domestically and internationally. These expansions will be accompanied by continuous technological advancements to enhance efficiency and adaptability to various waste types. Furthermore, we aim to solidify our position as a leader in sustainable waste management in the agrifood sector, providing a blueprint for others to follow in making the food supply chain more sustainable.



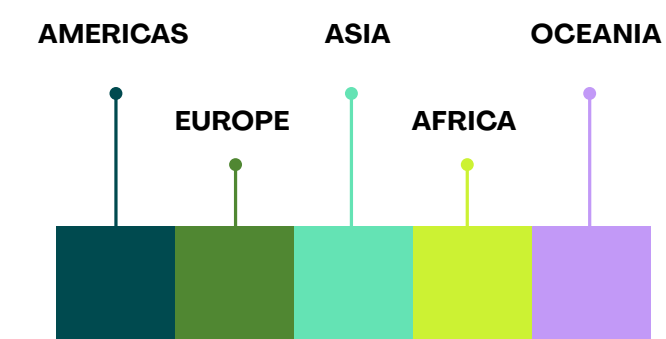
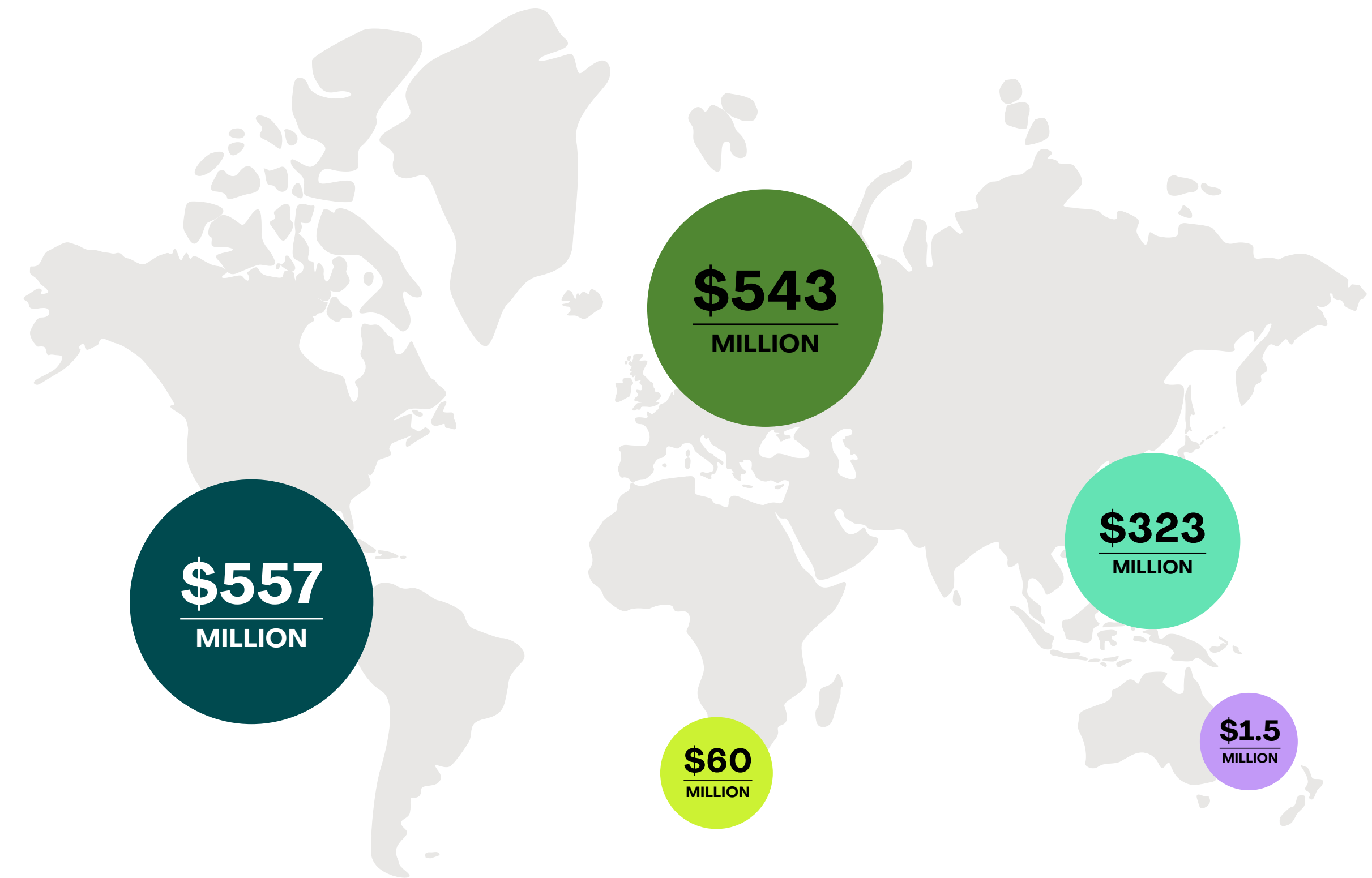
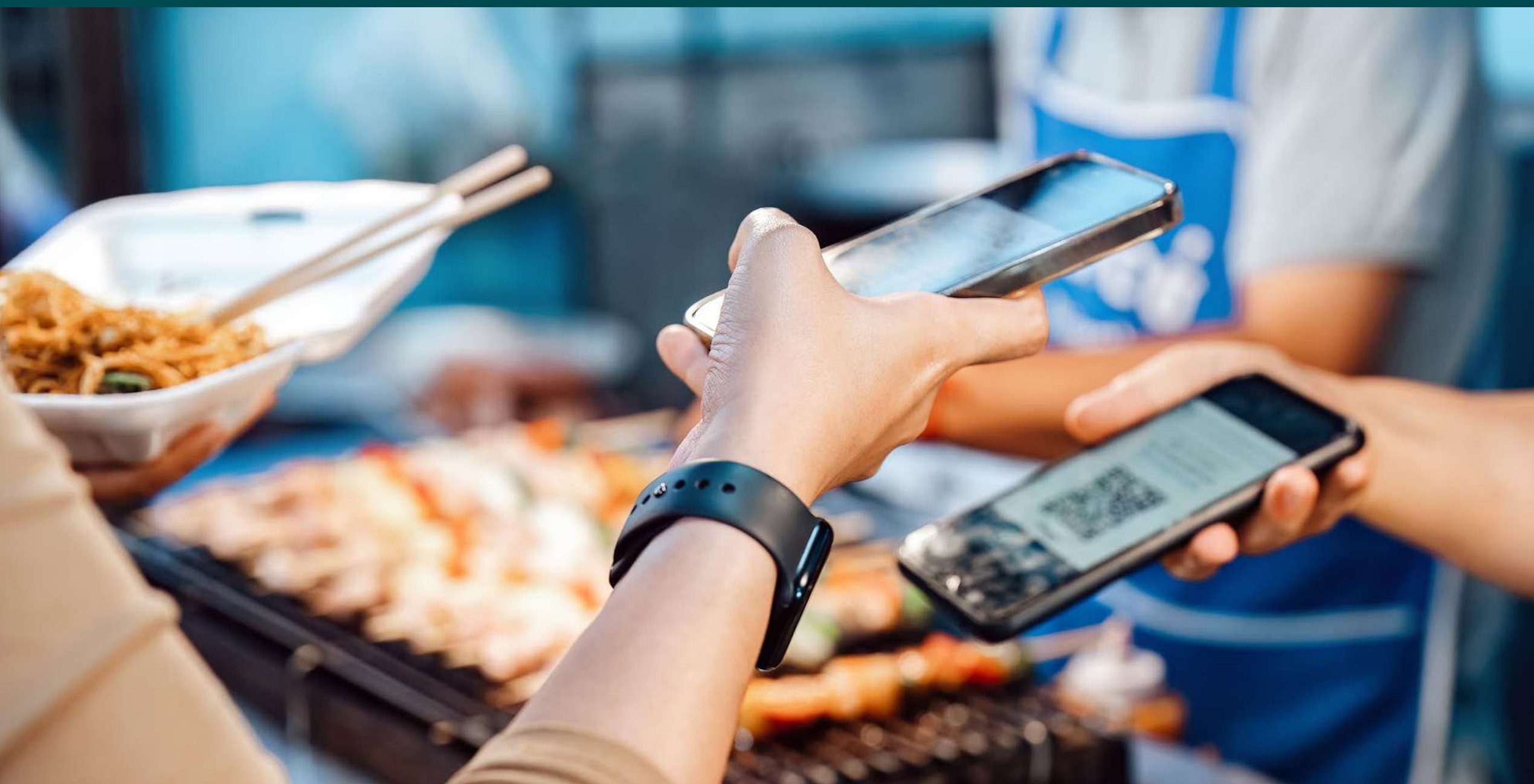
In-store Retail & Restaurant Technology



2023 Funding by region (\$ USD)



Total funding in this category fell 57% to \$1.5bn in 2023, with the biggest checks going to UK-based Iwoca, which provides credit financing to restaurants and other small businesses; and US-based Restaurant365, which provides accounting, inventory management, scheduling, payroll and HR services to restaurants.


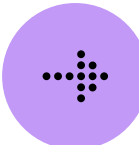


In-store Retail & Restaurant Technology

Top deals 2023 (\$ USD)


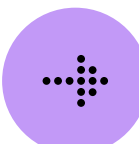
Players to watch include Irish startup Everseen, which applies computer vision to the retail sector to tackle theft; and Chinese firm Minicoffee, which develops and operates smart coffee terminal equipment for companies.



01	 iwoca	\$244 million	DEBT	
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02	 Restaurant365	\$135 million	LATE	
----	--	----------------------	------	---

03	 Everseen	\$71 million	SERIES A	
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04	 Minicoffee	\$63 million	SERIES B	
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05	 Instawork	\$60 million	SERIES D	
----	--	---------------------	----------	---

06	 iwoca	\$56 million	DEBT	
----	--	---------------------	------	---

07	 Odeko	\$53 million	SERIES D	
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08	 Trax	\$50 million	DEBT	
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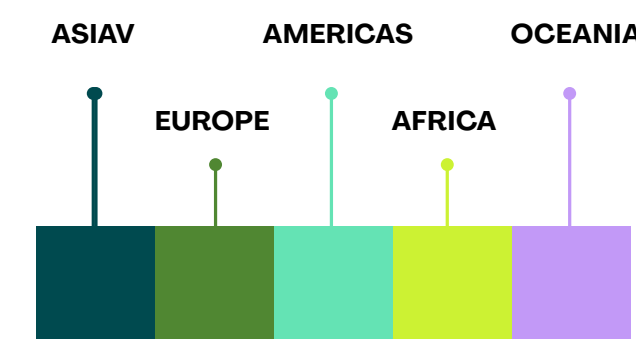
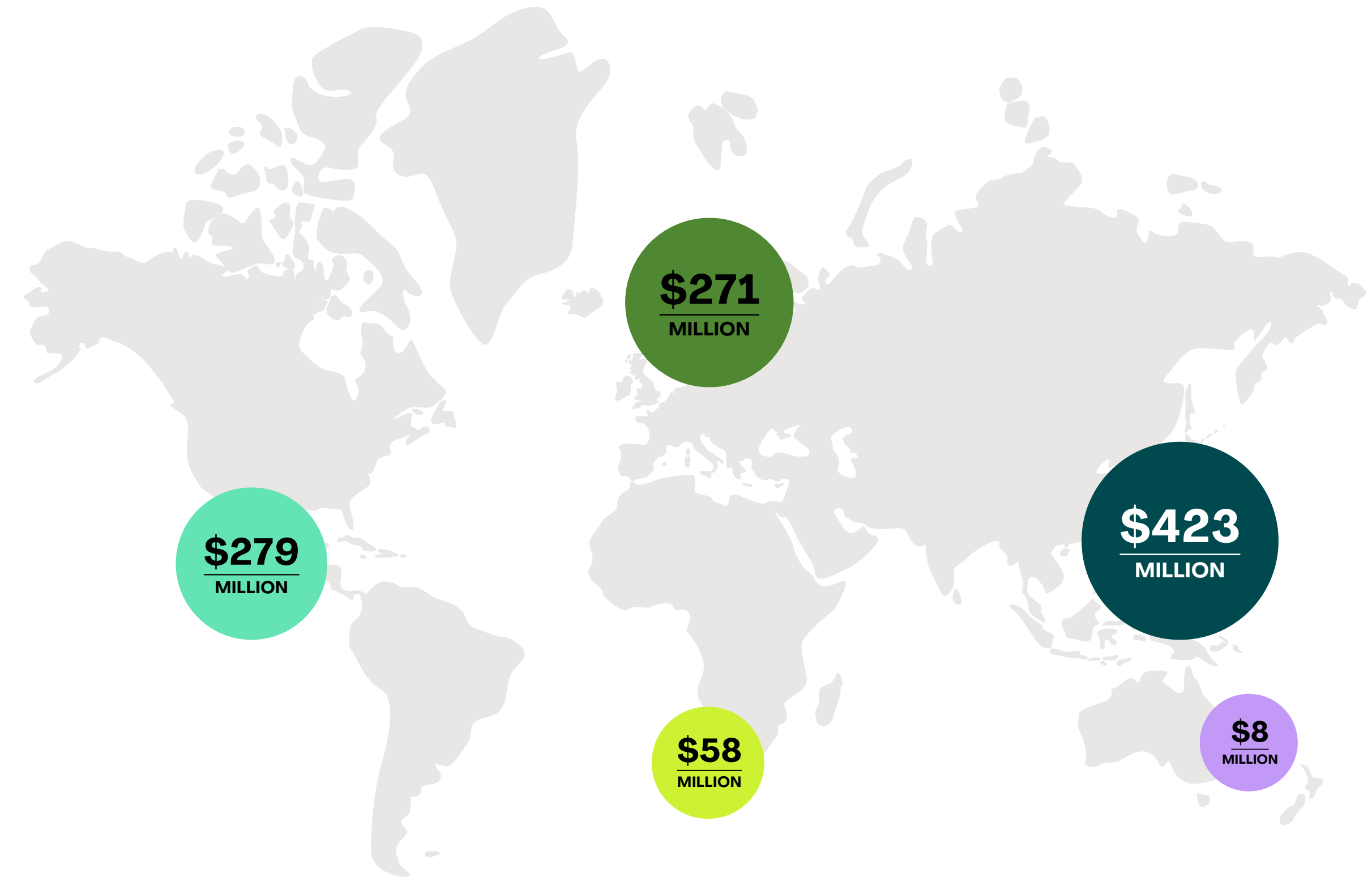
Midstream Technologies



2023 Funding by region (\$ USD)



The Midstream Technologies category includes areas along the middle of the supply chain such as food safety and traceability, logistics and processing. The Americas formerly led the Midstream category but saw investment dollars plummet 75% to just \$279 million in 2023. Asia took the top spot in 2023, with startups raising \$423 million, albeit across fewer deals: 79 compared to 104 in the Americas.




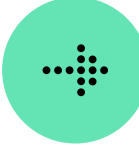
Midstream Technologies


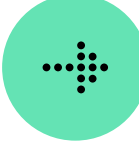
Top deals 2023 (\$ USD)

US-based Divert, which converts food waste into biogas, had the category's largest round, followed by a strong showing from Chinese companies, three of which landed in the top rounds.

Other notable rounds in the category include a \$20 million raise from retail inventory tech startup Crisp as well as \$18 million for China's Zhu Hang Xian Sheng, which integrates online and offline food retail data for the pork industry.


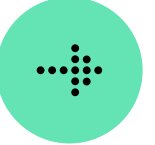


01		Divert
	\$100 million	LATE 

02		Qianhai Yueshi Information Tech.
	\$86 million	SERIES B 

03		Ruiyun Cold Chain
	\$69 million	SERIES A 

04		Oritain
	\$57 million	LATE 

05		PhaBuilder
	\$53 million	SERIES A 

06		Goglio Group
	\$50 million	DEBT 

07		Controlant
	\$40 million	LATE 

08		Sabi Am
	\$38 million	SERIES B 

Startup spotlight

Atinary

MISCELLANEOUS (AI RESEARCH)



Atinary is an enterprise SaaS startup, providing AI solutions that make innovation exponentially faster by fully integrating AI, robotics (optional) and cloud computing. Atinary augments researchers and speeds up the discovery and optimization of materials and molecules with machine learning, accelerating the time-to-market of breakthrough products.



atinary.com

What agrifood challenges are you trying to solve and how?

Atinary's clients operate in various industries, including food, life sciences, and climate tech. Atinary's AI platform, SDLabs, can seamlessly integrate robotic platforms into the workflow and close the loop with ML algorithms, enabling the Lab of the Future. The ideal applications are in formulation, catalysis, and synthesis, allowing users to find global optima in chemical reactions and find the best materials and molecules 100X faster and at a fraction of the cost compared to current methods such as Design of Experiments and High-throughput Experimentation.

Our SDLabs platform has been validated and deployed with leading companies such as DSM-Firmenich and IBM Research Zurich, as well as in top universities including MIT, ETH Zurich and DTU, among many others.

How have you weathered the current venture capital downturn?

Atinary has maintained lean operations with its outstanding team of engineers and experts in AI, machine learning, chemistry, and software development. We were also fortunate to gain investment at the end of 2023 with a \$5 million seed round led by AgFunder and supported by **Cherubic Ventures**.

What does 2024 have in store for you?

In 2024, Atinary looks to accelerate its revenues and scale its client base. The target industries are pharma and biotech, with additional clients in the chemical, advanced materials and climate tech industries, as well as partnerships in academia and other strategic partners.

“ NYU professor Scott Galloway argues that most \$100 billion companies are time machines, reshaping our understanding of what's possible when time's ticking away. Atinary is just that. ”

Manuel Gonzalez
Partner, AgFunder





Investments by geography

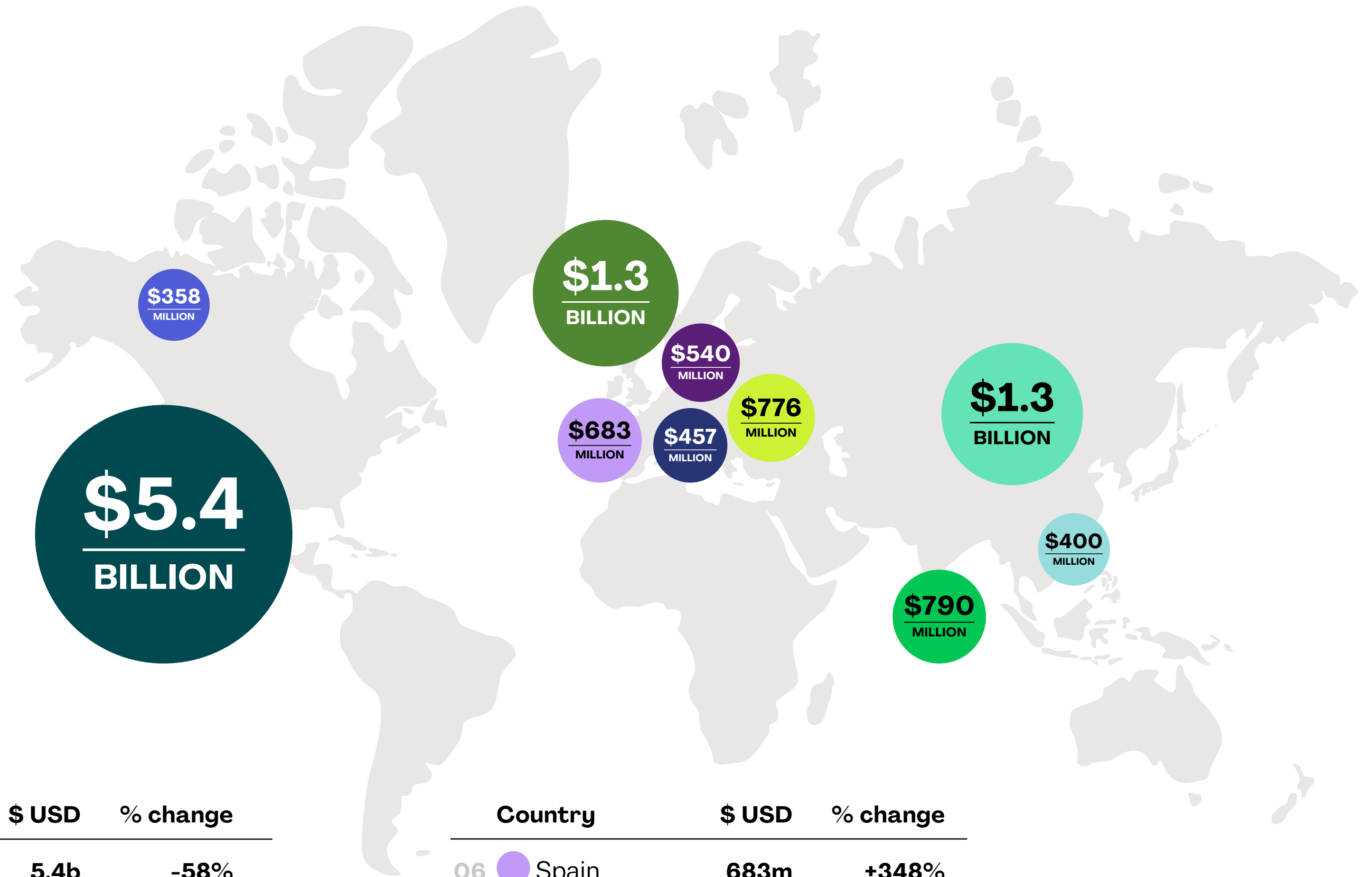
Investments by geography

Top countries 2023
(\$ USD)

2183 deals
raised globally in 2023

1939 unique companies
globally

\$11.9 billion
raised globally in 2023



	Country	\$ USD	% change
01	United States	5.4b	-58%
02	United Kingdom	1.3b	-29%
03	China	1.3b	-14%
04	India	790m	-76%
05	Germany	776m	+59%

	Country	\$ USD	% change
06	Spain	683m	+348%
07	France	540m	-58%
08	Switzerland	457m	+197%
09	Canada	416m	-60%
10	Hong Kong	400m	+179%



Share of agrifoodtech investment

by geography
2019-2023 (\$ USD)

No global region was immune to the downturn, although European startups felt it less acutely with a 14% decline. African investment levels remained higher than 2021 whereas Asia did not recover its pre-Covid totals.

The US was particularly badly hit with its share of agrifoodtech funding dropping to just over 30%; the country usually counts for at least 40% of all investment.

5 years of agrifoodtech by region

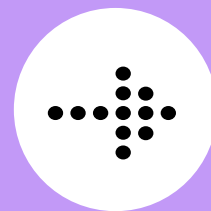
(\$ USD)



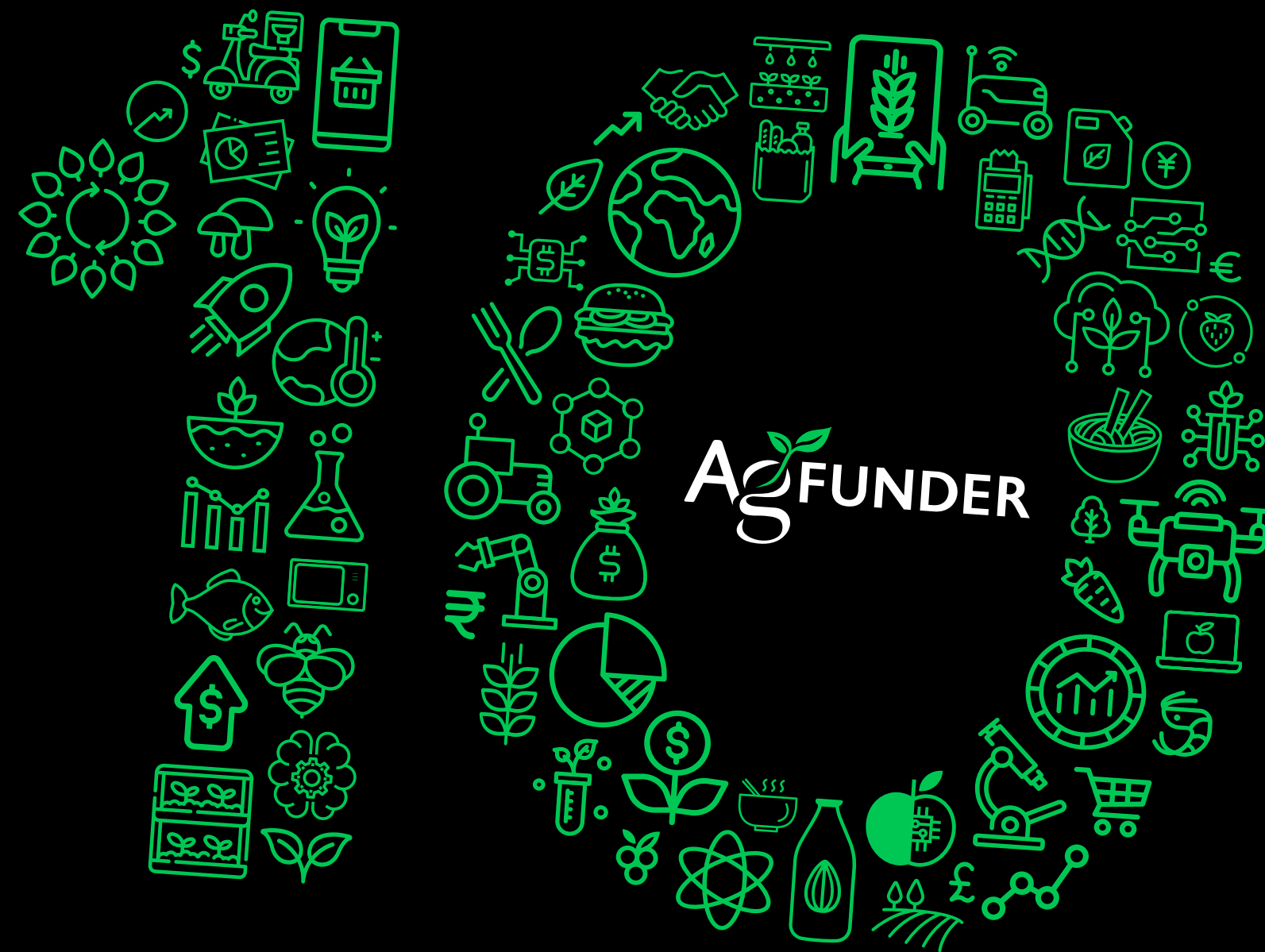
10 Years in AgTech & FoodTech 'e-zine

AgFunder was incorporated in 2013 to bring more funding and innovation to the agrifood sector. It was founded in the same year as Monsanto's pivotal \$1bn acquisition of Climate Corp. This celebratory 'zine takes you on a journey of investment trends, category timelines, OG founder interviews, VC views, and the history of AgFunder and its team. So sit back and enjoy the ride - we certainly did!

Download



10 Years in Agtech and FoodTech



a celebration and
potted history



US spotlight

Top deals 2023 (\$ USD)



Dollar funding in US agrifoodtech startups dropped 58% to \$5.37bn in 2023, while deal count fell 26% to 655, reflecting generally smaller rounds, with the exception of an \$829.5m mega-deal for biomaterials specialist Footprint at the end of the year.



01

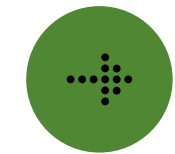


Footprint



830 million

BIOENERGY & BIOMATERIALS



02

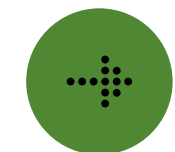


Indigo



\$250 million

AG MARKETPLACES & FINTECH



03

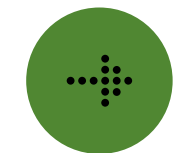


Cambrian Innovation



\$250 million

BIOENERGY & BIOMATERIALS



04

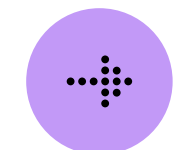


Restaurant365



\$135 million

INSTORE RETAIL & RESTAURANT TECH



05

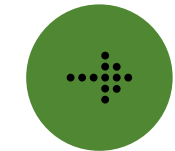


Xpansiv



\$125 million

AG MARKETPLACES & FINTECH



US spotlight

2014-2023 (\$ USD)

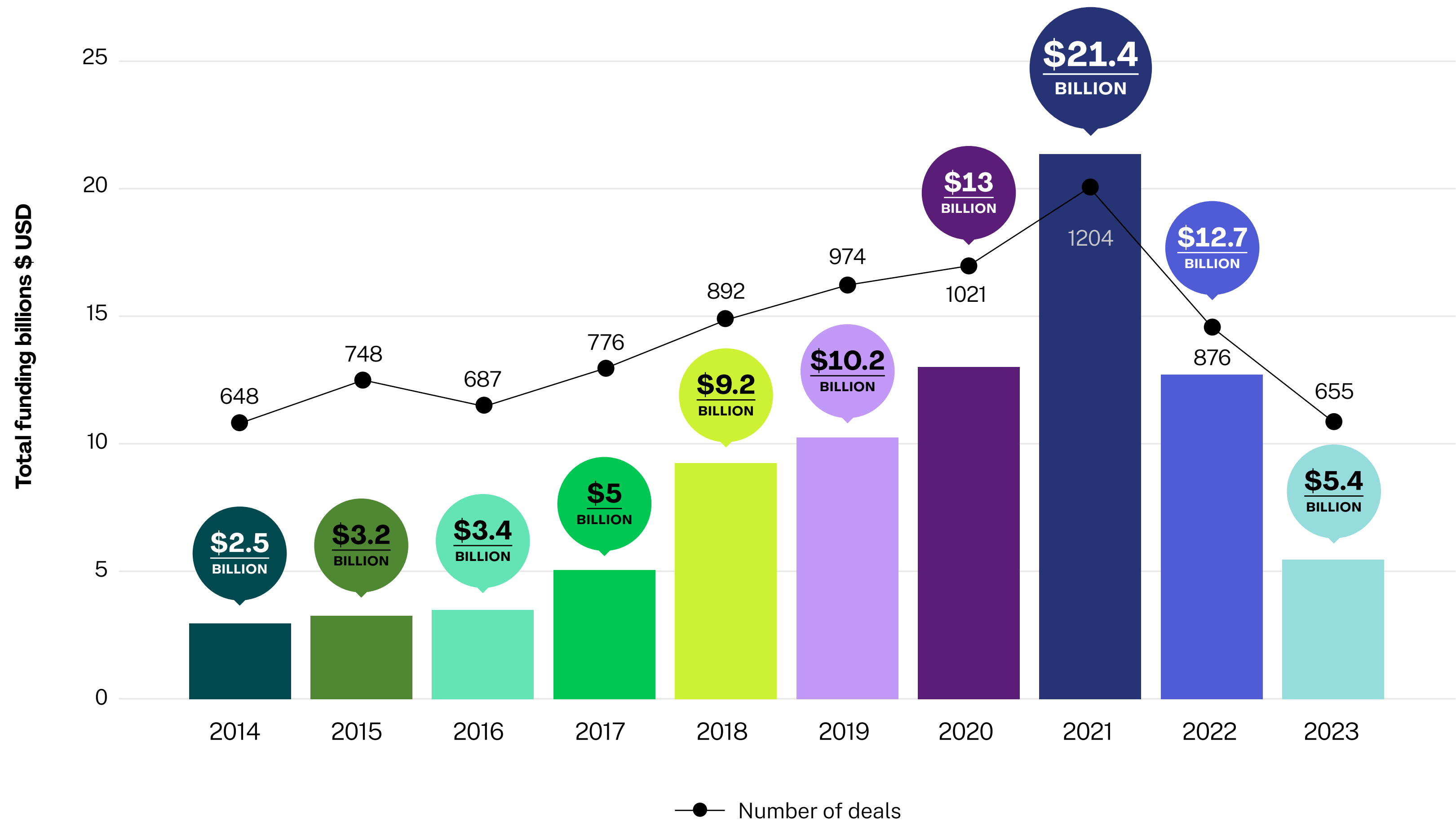
The big shift in 2023 was a move towards categories such as Bioenergy & Biomaterials (Footprint), and Ag Marketplaces & Fintech (Indigo) and away from categories that attracted the big bucks in 2021 and early 2022, when huge checks went to eGrocers such as Weee!, indoor farmers such as Plenty, and cultivated meat startups such as UPSIDE Foods.



- Upstream
- Midstream
- Downstream

10 year agrifoodtech investment in US

(\$ USD)



US spotlight

2023 (\$ USD)

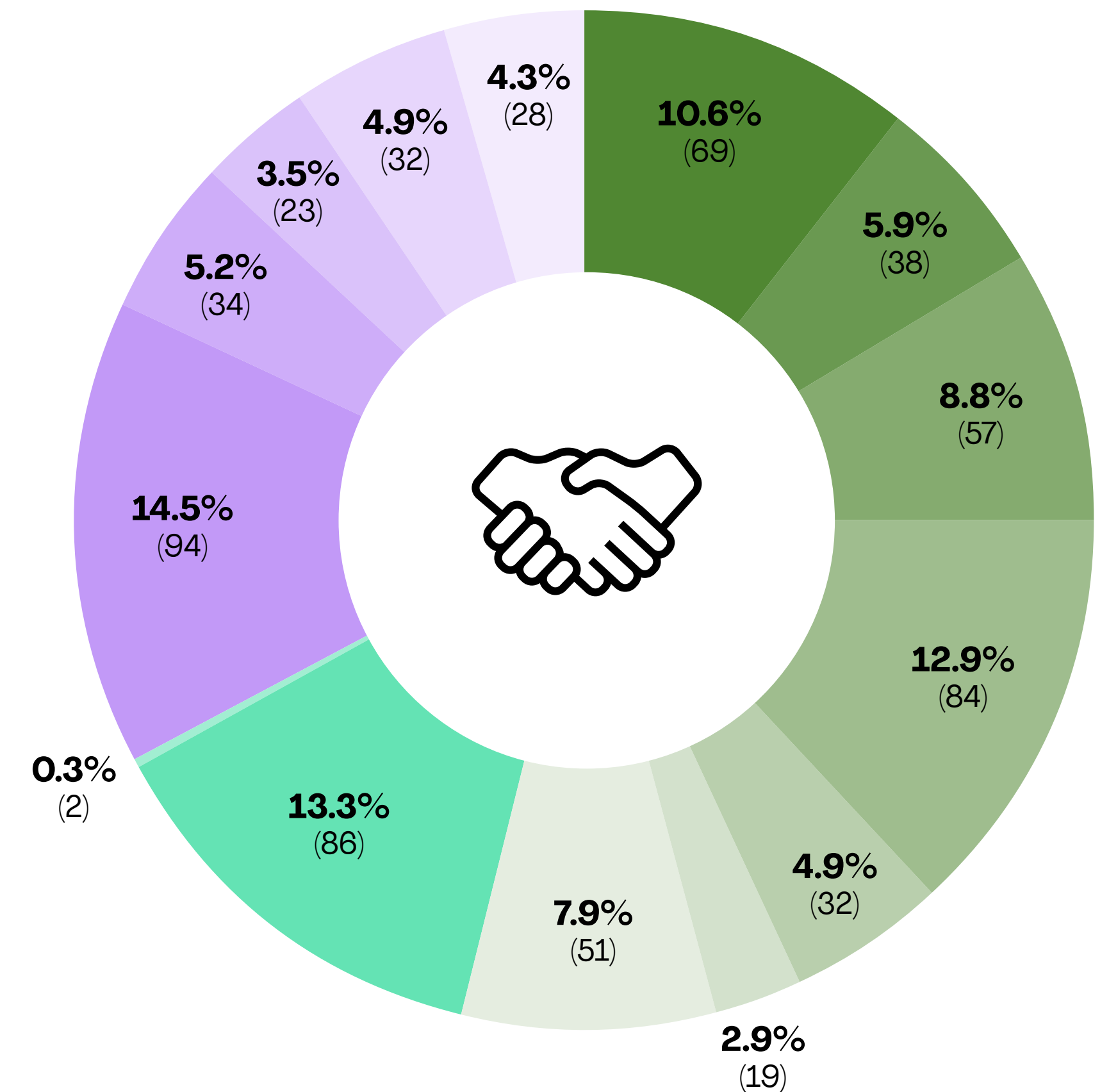
655 deals
across the region

\$5.4 billion
\$USD investment

Categories by funding (\$ USD)

Category	\$ USD	Deals
Bioenergy & Biomaterials	1.8b	69
Ag Marketplaces & Fintech	626m	38
Ag Biotechnology	501m	57
Innovative Food	458m	84
Farm Robotics, Mechanization & Equipment	194m	32
Novel Farming Systems	140m	19
Farm Management Software, Sensing & IoT	140m	51
Midstream Technologies	256m	86
Miscellaneous	25m	2
In-store Retail & Restaurant Tech	509m	94
Online Restaurants & Meal Marketplaces	241m	34
Cloud Retail Infrastructure	231m	23
Home & Cooking	171m	32
eGrocery	77m	28

Investment by deal count



- Upstream
- Midstream
- Downstream

Australia in focus

Top deals 2023 (\$ USD)



Parts of Australia are considered climate “hotspots,” experiencing some of the most extreme impacts of climate change. It follows, then, that some of the top agrifoodtech investments in the country went to upstream startups focused on soil carbon storage (Loam Bio), methane reduction (Rumin8) and energy-efficient indoor farming systems (Stacked Farm). Australian agrifoodtech startups raised \$187 million in 2023 across 29 deals.



01

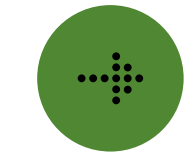


LoamBio

\$73.2 million

AG BIOTECHNOLOGY

loam



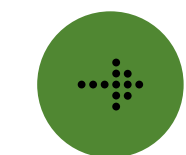
02



Stacked Farm

\$26.7 million

BIOENERGY & BIOMATERIALS



03

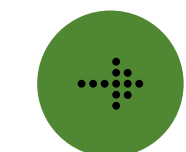


Eden Brew

\$15.4 million

INNOVATIVE FOOD

Eden Brew



04

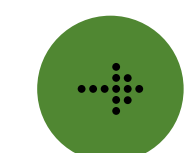


Rumin8

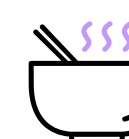
\$12 million

AG BIOTECHNOLOGY

Rumin8



05

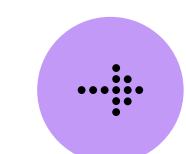


FoodByUs

\$12 million

ONLINE RESTAURANTS & MARKETPLACES

FOODBYUS



Australia spotlight

2023 (\$ USD)

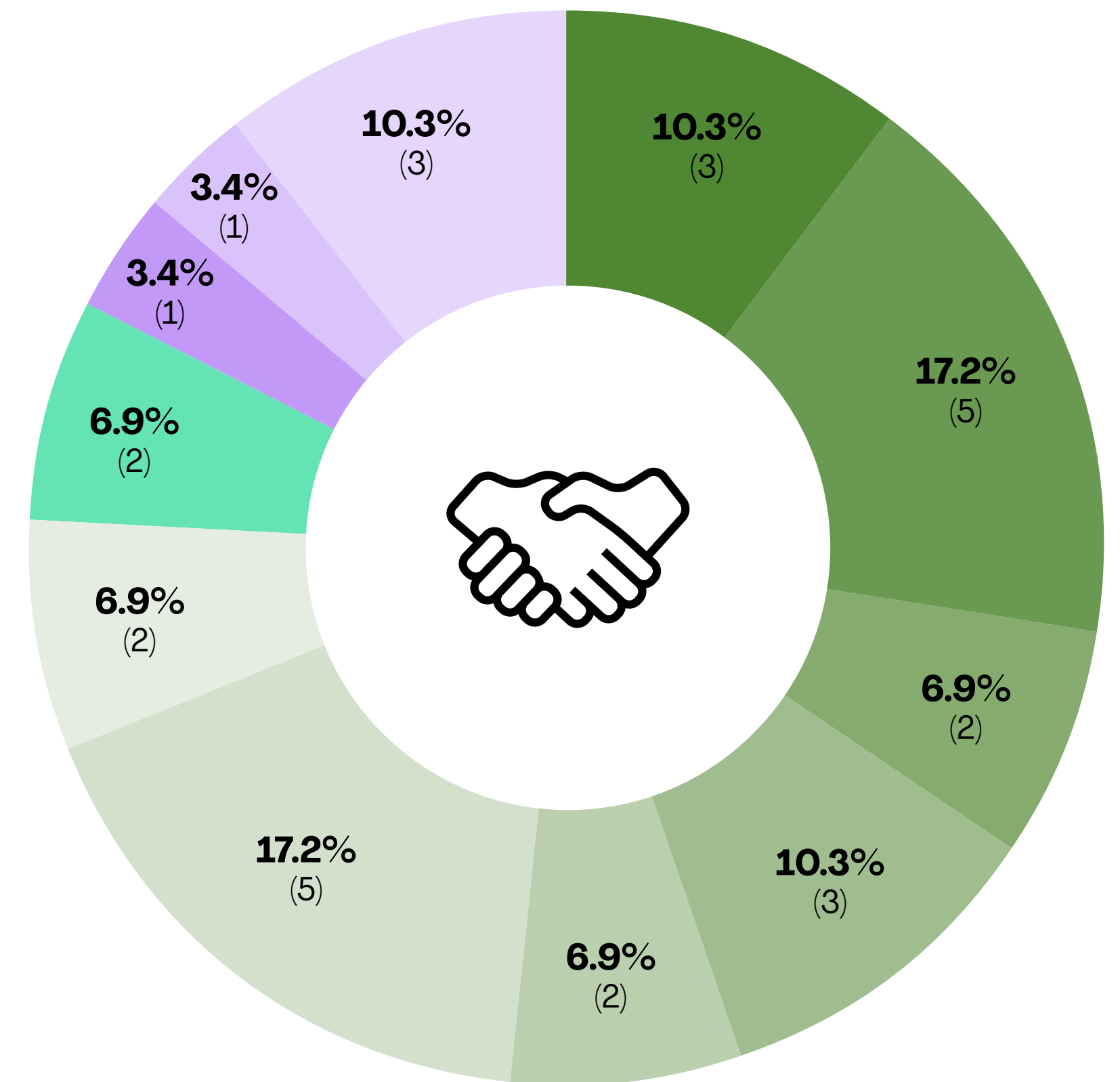
29 deals
across the region

\$187 million
\$USD investment

Categories by funding (\$ USD)

Category	\$ USD	Deals
● Ag Biotechnology	501m	3
● Novel Farming Systems	140m	5
● Innovative Food	458m	2
● Farm Robotics, Mechanization & Equipment	194m	3
● Bioenergy & Biomaterials	1.8b	2
● Farm Management Software, Sensing & IoT	140m	5
● Ag Marketplaces & Fintech	626m	2
● Midstream Technologies	256m	2
● Online Restaurants & Meal Marketplaces	241m	1
● eGrocery	77m	1
● In-store Retail & Restaurant Tech	509m	3

Investment by deal count



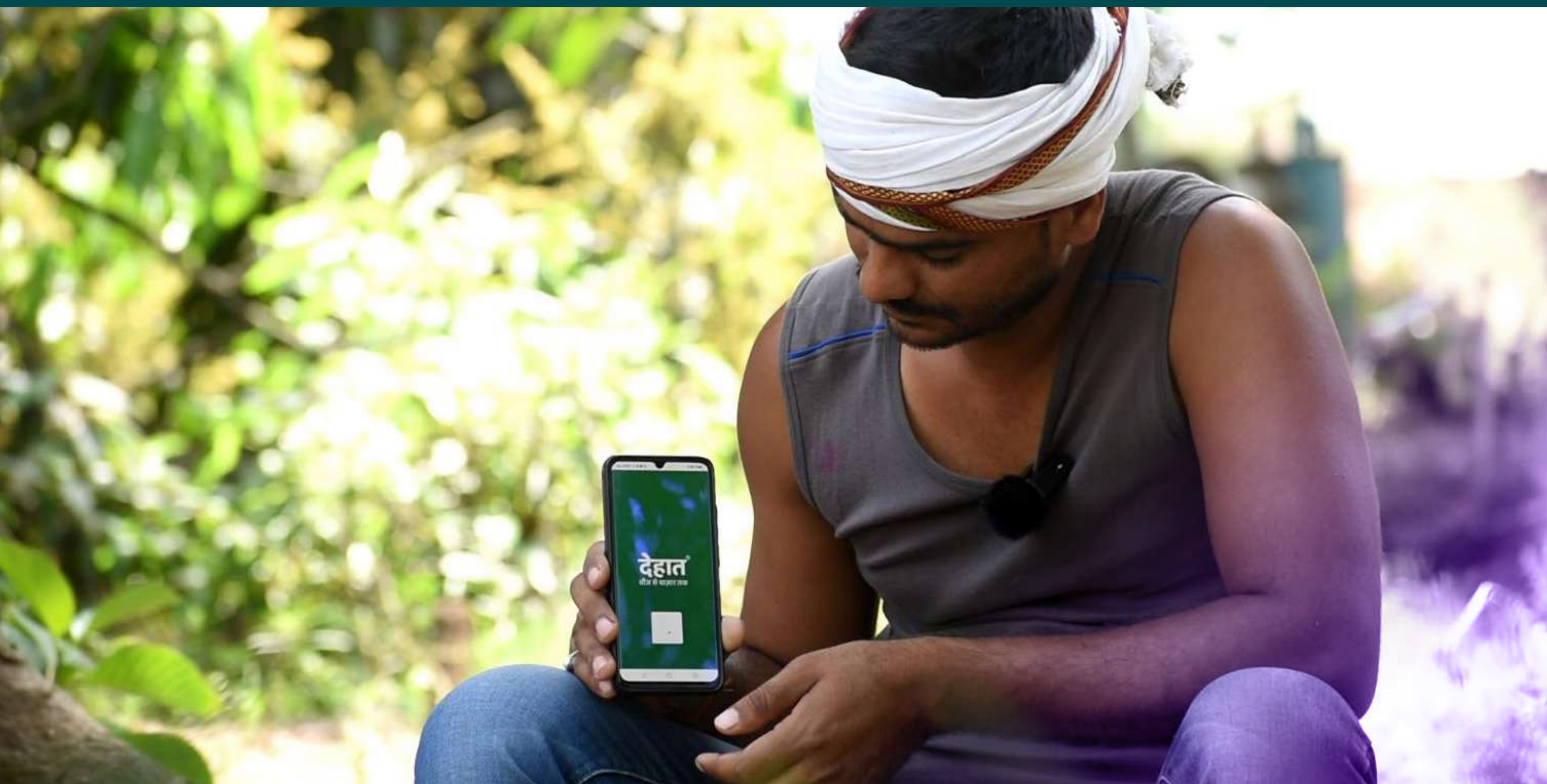
- Upstream
- Midstream
- Downstream

Emerging market spotlight

Top deals 2023 (\$ USD)







China and India have dominated emerging market agrifoodtech funding totals for many years, especially in 2021 when they brought in a combined \$11 billion. In 2022 and 2023 their share of emerging markets declined to around 40% with big deals from countries like Indonesia (eFishery), Saudi Arabia (Nana), Israel (Percepto), Brazil (SuperBAC) and Singapore (Trax) among the top 20.





01 EcoCeres 
\$400 million
 BIOENERGY & BIOMATERIALS 

02 Zepto 
\$200 million
 EGROCERY 

03 Yufunian 
\$141 million
 BIOENERGY & BIOMATERIALS 

04 Nana 
\$133 million
 EGROCERY 

05 eFishery 
\$108 million
 FARM ROBOTICS, MECH. & OTHER EQ 

Emerging market spotlight

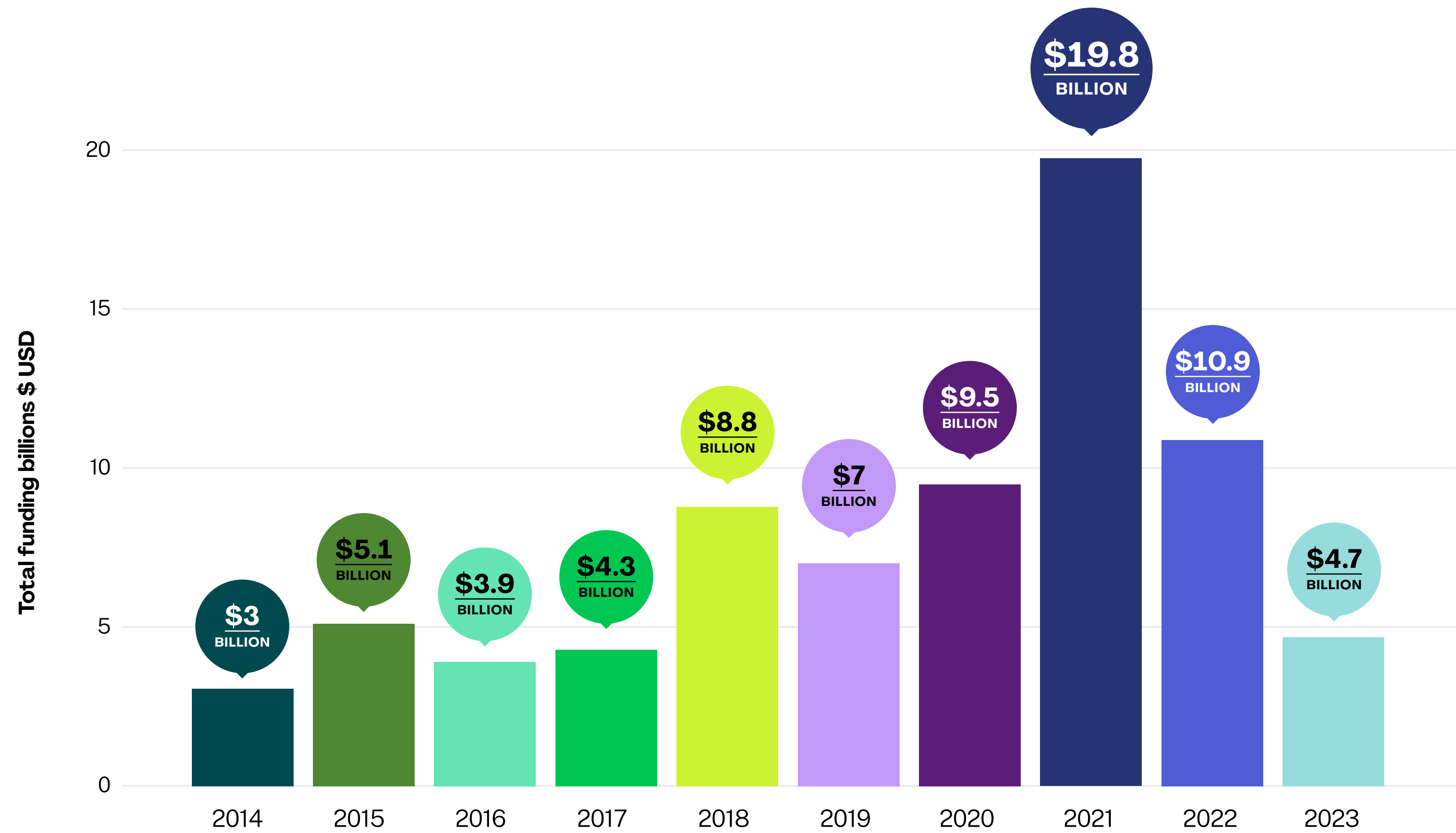
2014-2023 (\$ USD)

Emerging market agrifoodtech ecosystems with significant downstream investment activity in previous years were the most badly hit. Africa in 2023, where upstream and farmtech investments have generally dominated, has fared better; in 2023 the region brought in more funding than 2021, albeit from a low base. Asia's prowess in alternative protein, indoor farming and food delivery did not serve the region well in 2023.

With so much need and opportunity to serve the world's 600 million smallholder farmers producing at least one third of the world's food, it's good news that in 2023 upstream investment (\$2.45bn) was greater than downstream \$1.3 billion), although investment in the midstream was very low (\$497 million).

10 year agrifoodtech investment in emerging markets

(\$ USD)



Emerging market spotlight

2023 (\$ USD)

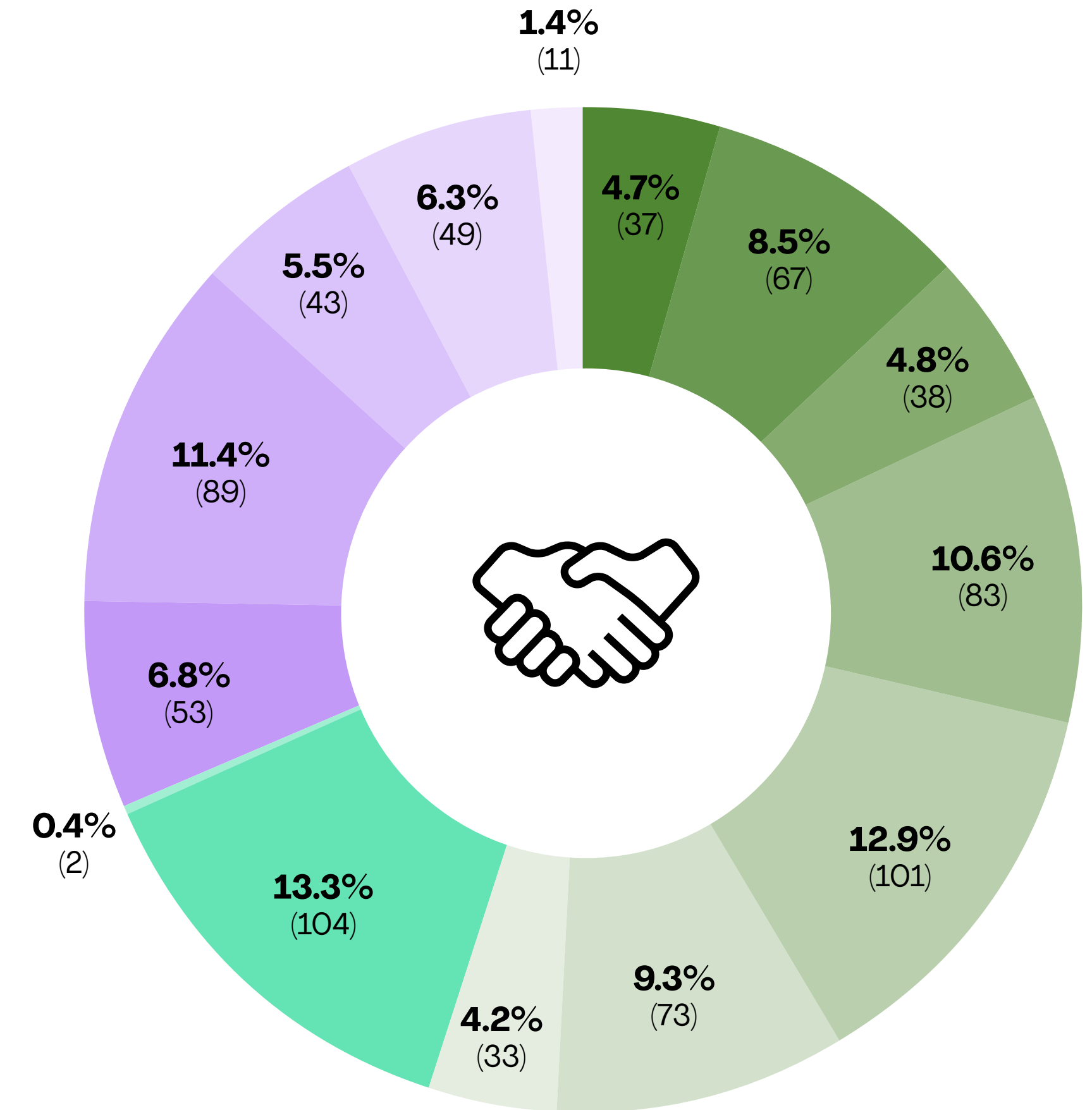
785 deals across the region

\$4.7 billion \$USD investment

Categories by funding (\$ USD)

Category	\$ USD	Deals
Bioenergy & Biomaterials	818m	37
Ag Biotechnology	585m	67
Farm Robotics, Mechanization & Equipment	389m	38
Ag Marketplaces & Fintech	365m	83
Farm Management Software, Sensing & IoT	294m	101
Innovative Food	234m	73
Novel Farming Systems	103m	33
Midstream Technologies	505m	104
Miscellaneous	125k	3
eGrocery	733m	53
In-store Retail & Restaurant Tech	421m	89
Cloud Retail Infrastructure	109m	43
Online Restaurants & Meal Marketplaces	88m	49
Home & Cooking	39m	11
Unknown	14m	1

Investment by deal count



- Upstream
- Midstream
- Downstream



Investments by stage



Investments by stage

2018-2023

Early-stage investment appears close to pre-Covid levels, however funding in the second half of the year dropped significantly. Growth and late stage companies are also expected to continue to face severe challenges in raising funds, especially those with high capex requirements.

Investment by stage

(\$ USD)

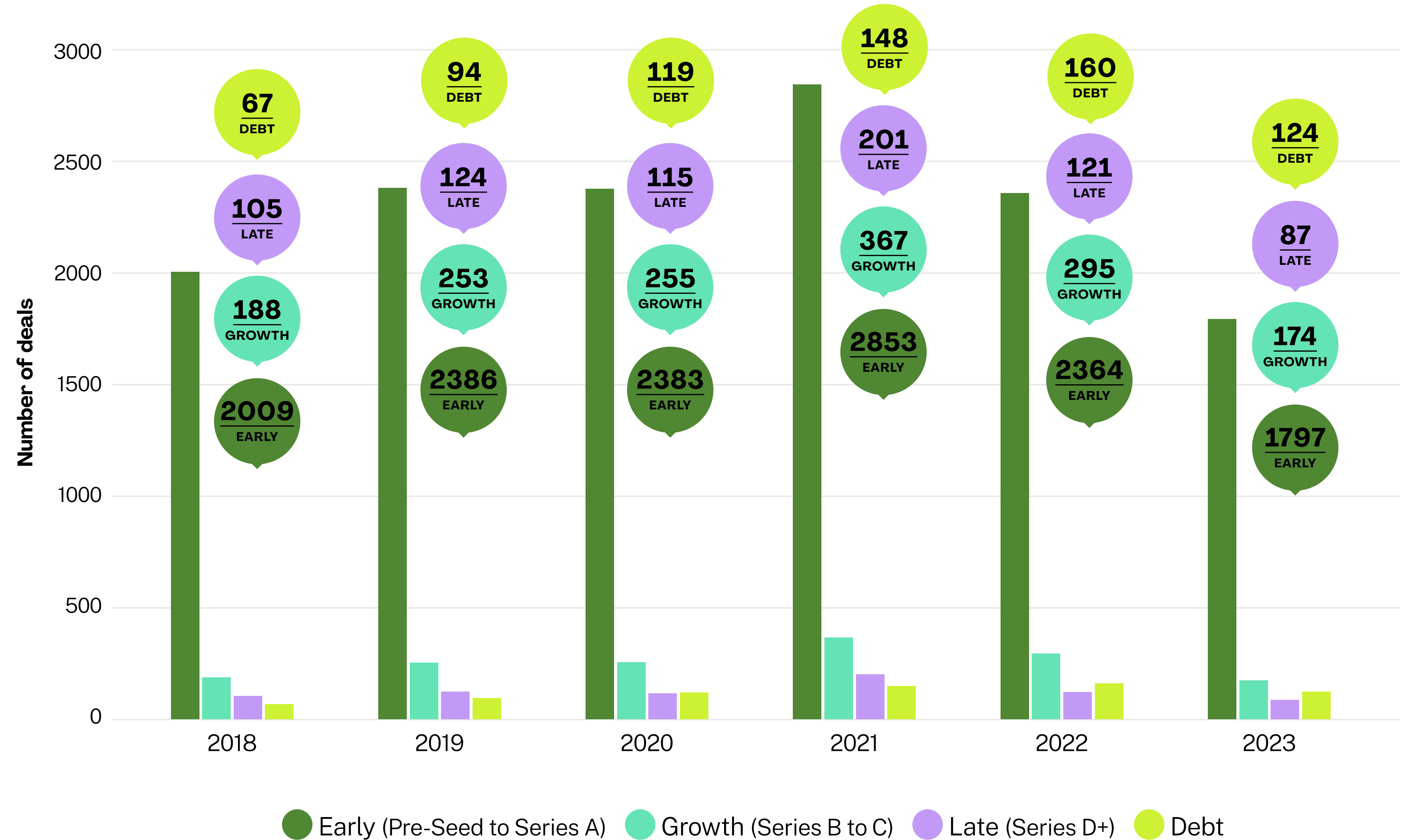


Investments by stage

2018-2023

After steady growth during the pandemic years, the number of agrifoodtech deals has dropped roughly 9% below 2019 levels. Much of this can be attributed to wider macro trends that have made investment dollars less plentiful. Early, growth and late stages all saw fewer deals in 2023 compared to 2019. Debt funding was the only stage that saw a modest increase in deal numbers in 2023.

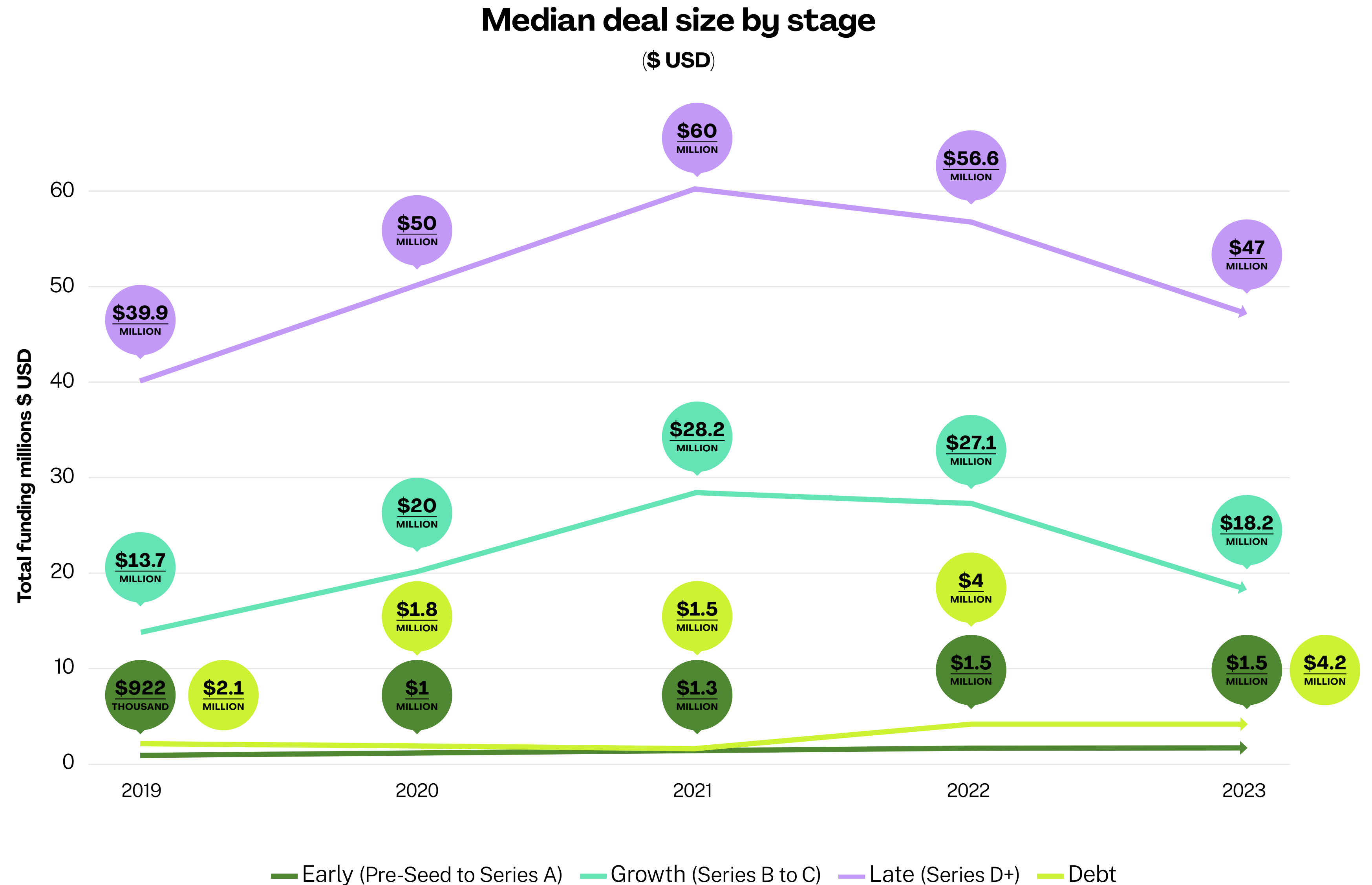
Deal activity by stage



Investments by stage

2018-2023

It's interesting to see that median deal sizes remain above pre-Covid/pre-VC boom times across all stages despite the dramatic decrease in overall funding levels. In fact, venture debt deals appear to have continued their upward trajectory.



Investments by stage

Top deals 2023 (\$ USD)

The majority of early-stage rounds went to upstream companies — those working at the farm or lab. This shouldn't surprise, as much focus has shifted in that direction since 2021. All four Ag Biotechnology companies in the top rounds were Chinese startups, as were two midstream startups. Restaurant tech, online restaurants and at-home cooking represented the downstream sector in the top rounds.



- Upstream
- Midstream
- Downstream

Seed

COUNTRY	RAISED	COMPANIES FUNDED	STREAM
	\$25m	qlub	●
	\$20.3m	The Cumulus Coffee Company	●
	\$20m	ADAR Technologies, LLC	●
	\$19.6m	Konscious Foods	●
	\$18.8m	Constellr	●
	\$15m	Better Foods	●
	\$14.5m	Qihe Biotech	●
	\$14m	YDLabs	●
	\$13.8m	Weiyuan Synthetic Biotechnology	●
	\$12.7m	Cookin	●

Series A

COUNTRY	RAISED	COMPANIES FUNDED	STREAM
	\$141.4m	Yufunian	●
	\$86.6m	KingAgroot	●
	\$70.9m	Everseen	●
	\$68.9m	Ruiyun Cold Chain	●
	\$54.7m	Shiji Biotechnology	●
	\$53.3m	PhaBuilder	●
	\$40m	MarketForce	●
	\$38.7m	Traceless Materials	●
	\$36m	Kernel Foods	●
	\$34m	Umiami	●

Investments by stage

Top deals 2023 (\$ USD)

Bioenergy & Biomaterials companies accounted for two of the three top spots for Series B rounds in 2023. These mega-raises — from materials science company Footprint and biomass conversion startup Charm Industrial — suggest growing interest in alternative materials and converting waste such as agricultural byproducts into other uses. China’s Bluepha, which has developed a microbial plastic replacement material, also had a healthy Series B round.



- Upstream
- Midstream
- Downstream

Series B

COUNTRY	RAISED	COMPANIES FUNDED	STREAM
	\$829.5m	Footprint	
	\$161.3m	Flink Food	
	\$100m	Charm Industrial	
	\$85.9m	Qianhai Yueshi Information Technology	
	\$81m	Evozyne	
	\$73.5m	Shef	
	\$73.2m	Loam Bio	
	\$62.9m	Minicoffee	
	\$60m	Fulfil Solutions	
	\$58.6m	Bluepha	

Series C

COUNTRY	RAISED	COMPANIES FUNDED	STREAM
	\$229.4m	yfood Labs	
	\$133.3m	Nana	
	\$82.5m	Huel	
	\$71.1m	Aphea.Bio	
	\$70m	Mill	
	\$67m	Percepto	
	\$53.3m	Halter	
	\$50m	JOKR	
	\$50m	Daki	
	\$47.6m	DAIZ	

Investments by stage

Top deals 2023 (\$ USD)

Biomaterials companies once again contributed to a big chunk of late-stage investments, most notably with EcoCeres' \$400 million round from Bain Capital.

Meanwhile, downstream companies were prominent amongst Series D fundings, including three startups from eGrocery, a once-prominent category that has since struggled in the midst of consolidation, stiff competition and tough capital markets.



- Upstream
- Midstream
- Downstream

Series D

COUNTRY	RAISED	COMPANIES FUNDED	STREAM
	\$174.8m	Ynsect	●
	\$108m	eFishery	●
	\$104.1m	Freshtohome	●
	\$100m	LeafLink	●
	\$92m	eFishery	●
	\$60m	Instawork	●
	\$53m	Odeko	●
	\$50m	Daki	●
	\$50m	JOKR	●
	\$47m	NewLeaf Symbiotics	●

Late

COUNTRY	RAISED	COMPANIES FUNDED	STREAM
	\$400m	EcoCeres	●
	\$353.4m	Butternut Box	●
	\$325m	Atlas Agro	●
	\$250m	Indigo	●
	\$200m	Zepto	●
	\$200m	Cambrian Innovation	●
	\$135m	Restaurant365	●
	\$129m	Biobest	●
	\$125m	Xpansiv	●
	\$100m	Divert	●

Investments by stage































Top deals 2023 (\$ USD)

Clearly eGrocery is down but not out, if Spanish online grocery company Eroski's \$544 million raise is any proof. Restaurant tech companies also had a few notable rounds, including iwoca, which connects small businesses in the UK and Germany, including bars and restaurants, to credit access. The company had two major raises in 2023, including one for \$244 million.



- Upstream
- Midstream
- Downstream

Debt

COUNTRY	RAISED	COMPANIES FUNDED	STREAM
	\$544.7m	Eroski	 
	\$244.2m	iwoca	 
	\$177m	Locus Fermentation Solutions	 
	\$100m	Silo	 
	\$58m	GoodLeaf Farms	 
	\$55m	iwoca	 
	\$50m	Trax	 
	\$50m	Aemetis Biogas	 
	\$49.5m	Goglio Group	 
	\$49.4m	Green Genius	 



Food Waste



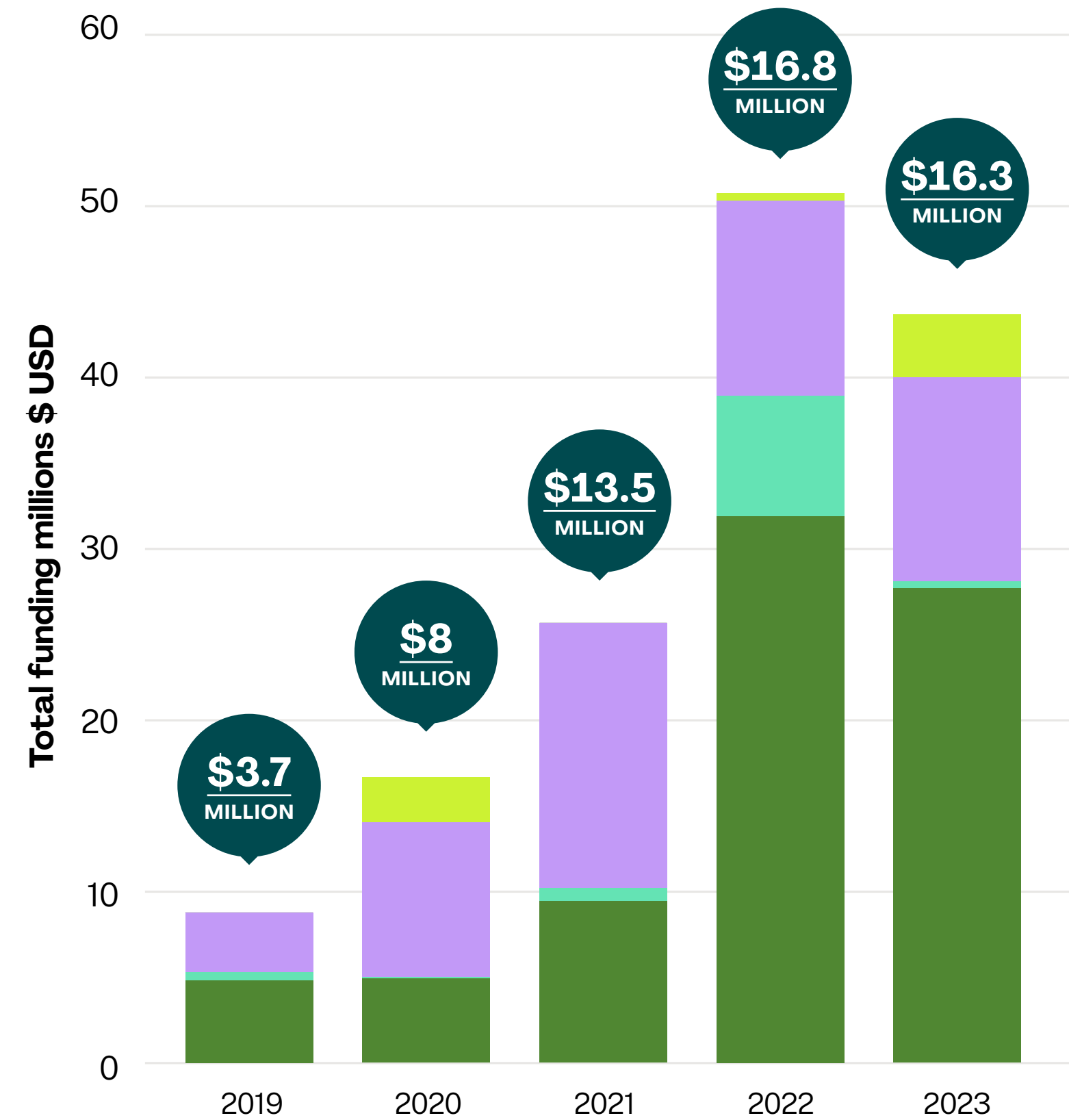


Funding and deals

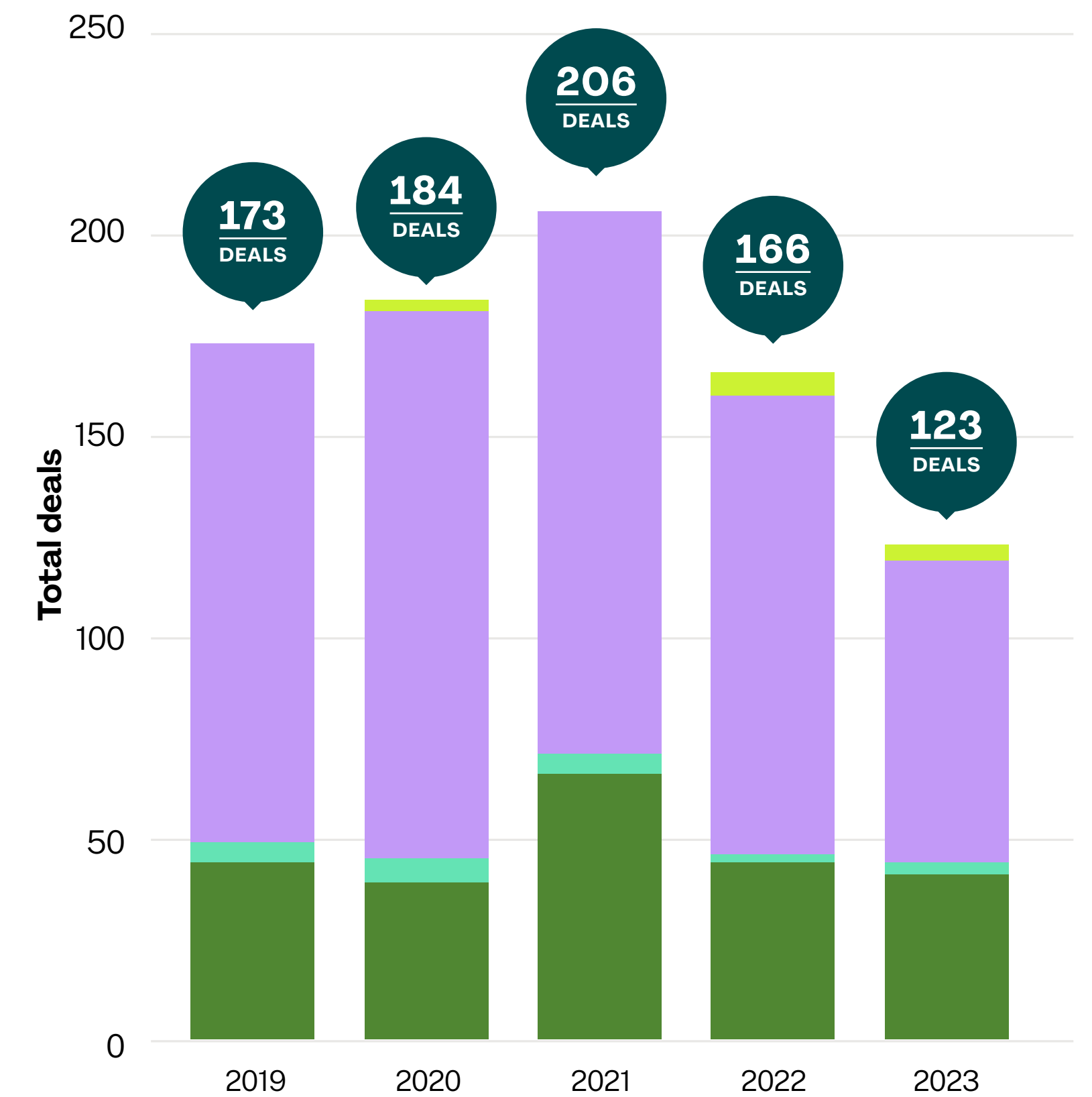
2019-2023

Significant investment has been supporting recycling solutions which have the perception of being able to scale and handle large volumes of waste. This area has also gotten a lot of government infrastructure support.

Funding by solution



Deals by solution



● Recycling ● Rescue ● Prevention ● General



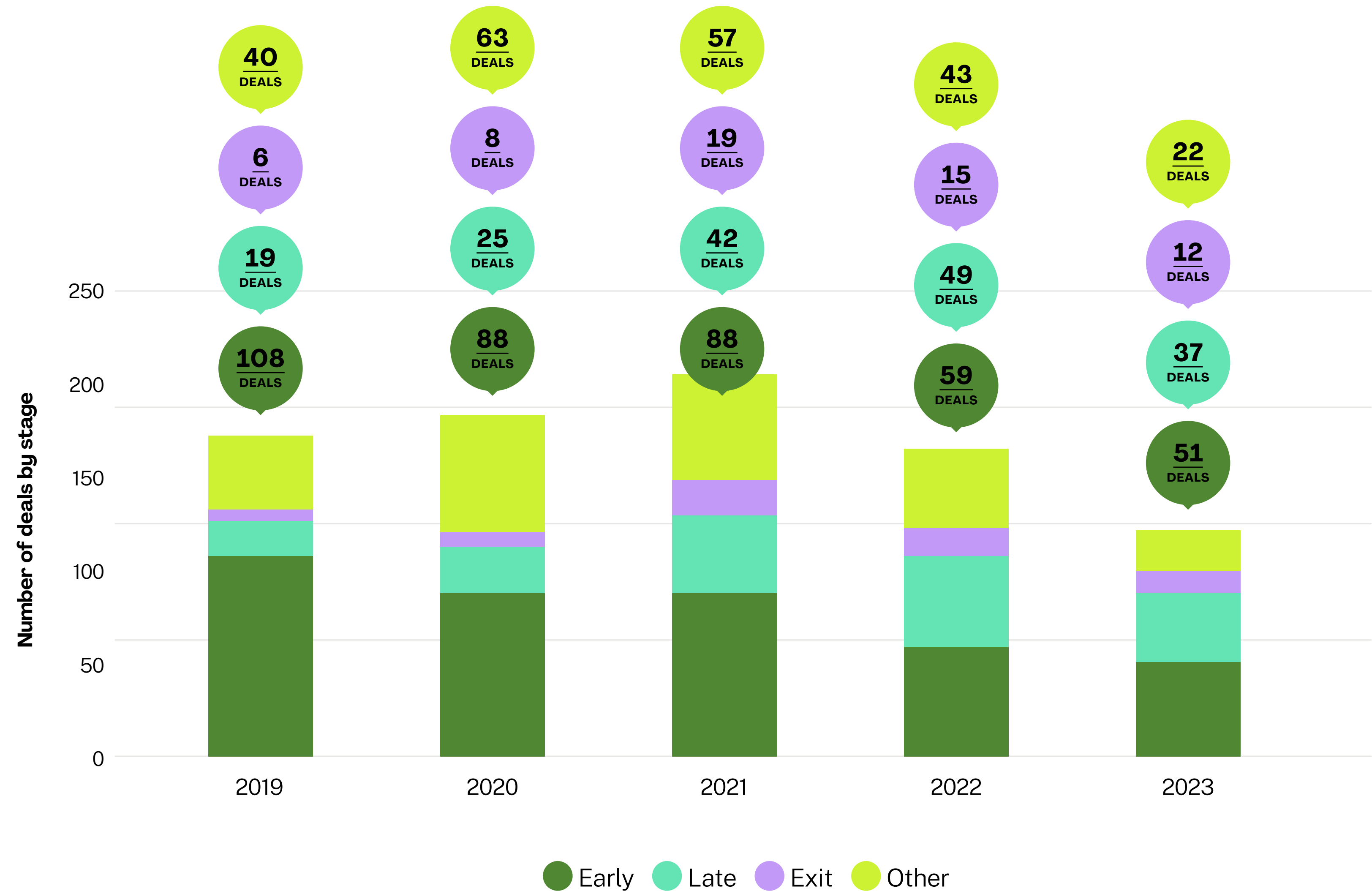
Deals by stage

2019-2023

Although food waste as a sector still is in the early stages of development, we are now seeing solutions companies enter the later stage and are starting to scale with the help of corporates.



Food waste deal activity by stage





Largest deals and participants

2023

COMPANY	\$	SOLUTION TYPE	INVESTOR	DEAL TYPE
Sevana Bioenergy	\$250 million	Recycling	Ontario Teachers' Pension Plan	Buyout/LBO
Ynsect	\$175 million	Recycling	Astanor Ventures, FootPrint Coalition Ventures, Robert Downey, Upfront Ventures, Wind Capital	Later Stage VC - Series D
Divert	\$100 million	Recycling	Ara Partners, Enbridge	PE Growth/Expansion
Agrofresh	\$9 million	Prevention	Paine Schwartz Partners, The Norinchukin Bank, Onex Falcon	Buyout/LBO
Mill	\$70 million	Recycling	Breakthrough Energy, Energy Impact Partners, GV, Lowercarbon Capital, MarketX, Prelude Ventures, Springdale Ventures	Later Stage VC - Series C

● Recycling ● Rescue ● Prevention ● General




NOTE: EXCLUDES WONDER'S ACQUISITION OF BLUE APRON.



Top agrifoodtech investors by deal count

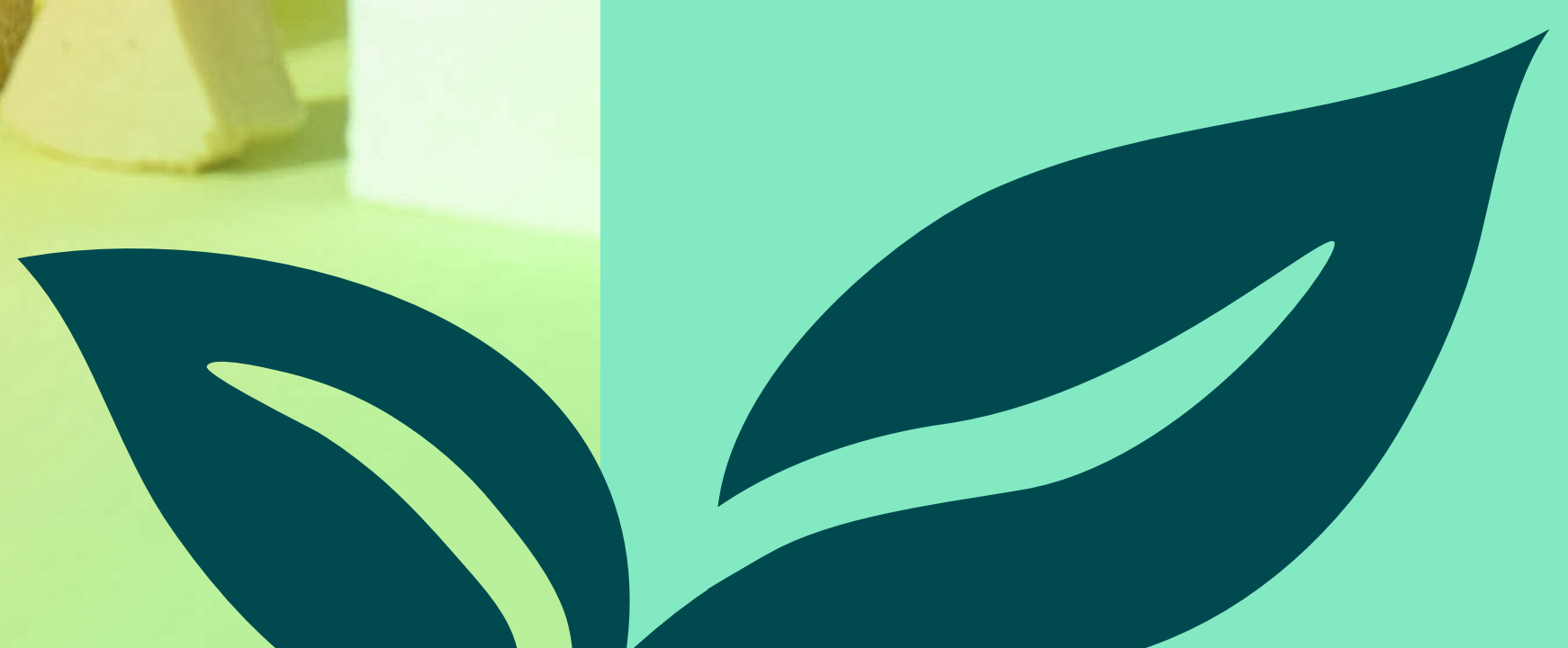
3374
venture investors backed Global companies in 2023

RANKING	INVESTOR	NO. DEALS	COMPANIES FUNDED INCLUDE
01	SOSV	45	GOZEN, Fashol, Prime Roots
02	Techstars	29	Farmshare, FreshX, Hydrosat
03	Big Idea Ventures	26	Future Cow, Multus, PFX Biotech
04	Antler	24	KaFresh, Farmio, Agrigate
05	Crowdcube	23	Torphene, RootWave, TiPJAR®
06	ProVeg Incubator	19	Poseidona, AlliumBio, Ergo Bioscience
07	AgFunder 	16	Tepbac, Azaneo, Fable Food
08	FJ Labs	15	Fudo, Cayena, Chowbus
09	Bpifrance	13	Farmitoo, CarbonFarm Technology, Umiami
10	Leaps by Bayer	11	Andes, EarthOptics, Fork & Good
11	Anterra Capital	10	Berkeley Yeast, BiomEdit, It's Fresh!
12	Grosvenor Food & AgTech	10	Gousto, Vytelle, AeroFarms


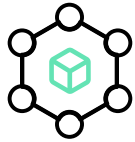




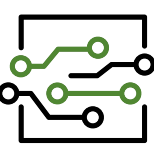

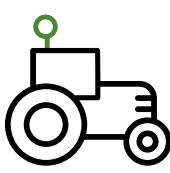
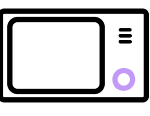








Appendix



Agrifoodtech category definitions

	Ag Biotechnology On-farm inputs for crop & animal ag including genetics, microbiome, breeding, animal health		Midstream Technologies Food safety & traceability tech, logistics & transport, processing tech
	Agribusiness Marketplaces & Fintech Commodities trading platforms, online input procurement, equipment leasing, farmer fintech		Miscellaneous All other agrifood-related tech
	Bioenergy & Biomaterials Non-food extraction & processing, feedstock technology, cannabis pharmaceuticals		In-Store Retail & Restaurant Tech Shelf-stacking robots, 3D food printers, payment systems, food waste monitoring IoT
	Farm Management Software, Sensing & IoT Ag data capturing devices, decision support software, big data analytics		eGrocery Online stores + marketplaces for sale and delivery of processed and unprocessed ag products to consumer
	Farm Robotics, Mechanization & Equipment On-farm machinery, automation, drone manufacturers, grow equipment		Home & Cooking Tech Smart kitchen appliances, nutrition technologies, food testing devices & home grow kits
	Novel Farming Systems Indoor farms, aquaculture, insect & algae production		Online Restaurants and Meal Marketplaces Online tech platforms delivering prepared food and meal kits from a wide range of vendors
	Innovative Food Cultured meat, novel ingredients, plant-based proteins		Cloud Retail Infrastructure On-demand enabling tech, ghost kitchens, last-mile delivery robots & services



- Upstream
- Midstream
- Downstream

Sources & methodology



Data Sources & Curation

Utilizing new advanced machine-learning algorithms and artificial intelligence to help identify and categorize agrifoodtech startups, our knowledge base has grown to more than 30,000 companies, with new startups and historical data being added each day.

The raw data for our reports comes from Crunchbase, which gathers publicly-available information such as press releases and US Securities and Exchange Commission filings, as well as crowdsourcing directly from our local data partners; in this case, Global: Omnivore, BitsxBites, and Beyond Next Ventures. AgFunder contributes data from its own collection methods, including private communications with investors and companies. We also collect data from partners across the globe to ensure we have the most comprehensive, accurate and curated dataset and knowledge base of agrifoodtech companies and investments.

The raw data is painstakingly curated by the AgFunder team, along with their data partners, to ensure they are relevant, accurate, up-to-date, and categorized according to AgFunder's proprietary tagging system.

We update and improve our dataset continuously throughout the year, meaning total figures from previous years' reports will shift as our dataset becomes more complete.

In 2022, we tightened our definitions of what constitutes an agrifoodtech venture to ensure that the emphasis on food and agriculture is core to the business.

That's had a recalibrating effect on this year's investment figures as well as some past data. Examples include logistics, drones, cloud and any other tech services that may have started in agrifood but have since added other sectors or pivoted away from agrifood. We've maintained historical rounds that were raised on an agrifood focus, where we could.

While we are happy to share our findings, we reserve all rights with respect to AgFunder research and this report and we require it to be fully and accurately cited when any of the data, charts, or commentary are used.

Undisclosed Financings

Of the 2183 financings in this report's curated dataset, 655 were undisclosed and could not be determined through research or direct sources. We exclude undisclosed financings when computing averages and median values. In some cases, we're able to confidentially obtain financing figures directly from investors on the condition they're only included in aggregate.

Multiple Financings

In some cases, Crunchbase displays multiple financings for the same company in the same year. This can be because a company closes subsequent rounds in the same year, but it can also be the result of several closes of the same round. We keep them separate unless they are announced as one single round.

Categorization

AgFunder's categorization system is designed to capture broad themes across the complex agrifoodtech value chain. The agrifood sector has a wide supply chain spanning inputs and industrials, farming, logistics, wholesale distribution, processing, retail distribution, and the consumer. In many cases, technologies such as marketplaces connect different links in the supply chain and so in this report we've chosen to focus on high-level themes. To assist with the categorization and to avoid subjectivity, AgFunder first employs over 150 machine learning and artificial intelligence models to suggest category placement and to help tag the company according to the technology and its place in the supply chain. Finally, the AgFunder team manually reviews the suggestions for each company, often with significant research and debate among our team.

Starting with our 2023 Global Agrifoodtech Investment Report, we combined Agribusiness Marketplaces and Fintech into one category as there is often overlap between the two. We maintained any fintech tools for retailers or restaurants within the Retail Tech category. Given the reduction in funding to food delivery services, we have also now combined Online Restaurants & Meal Kits and Restaurant Marketplaces into one category.

We've also taken a stricter stance on cannabis and CBD-related startups; there needs to be clear proprietary technology involved. We will not include pure consumer packaged goods or pure production, as we wouldn't include pure production in any other crop. If we believe the growing facilities are particularly high tech or utilize proprietary technology, we will still include it in our Novel Farming Systems category. The same goes for processed products; if the extraction technique is particularly innovative, we'll include it as a Biomaterials or Midstream Tech startup. Large vertically-integrated cannabis companies are also excluded.

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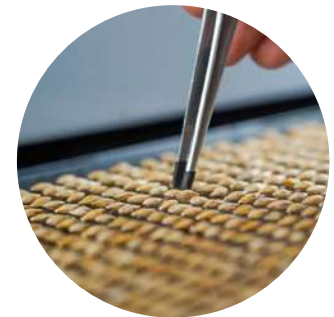
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