



2022



**AgFunder AgriFoodTech  
Investment Report**



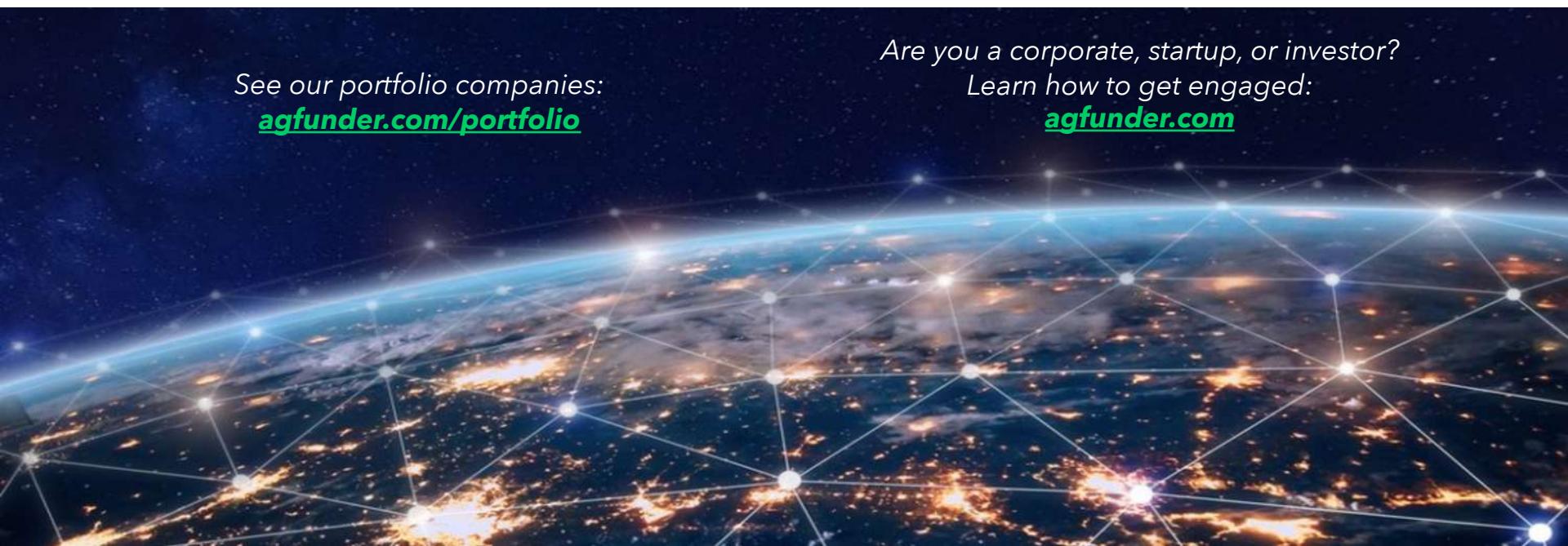
## **AgFunder is a digitally-native venture capital fund**

We invest in bold, transformational foodtech & agtech founders

AgFunder is one of the world's most active foodtech and agtech VCs. We're rethinking venture capital for the 21<sup>st</sup> century. We were born online, and with our publication AFN we've built a global ecosystem of 90,000+ subscribers. This gives us one of the most powerful networks to help build impactful and important companies. Our research reports are our love letter to the industry. ❤️

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# Global AgriFoodTech in 2022

Climate change. Covid-19. War in Ukraine. These severe and overlapping crises form the backdrop of surging investments in agrifood technologies. Alternative investments are no doubt appealing when global markets are in flux. But an investment in agrifoodtech is an investment to secure of one of our most basic human needs.

Venture capital investors pumped \$51.7bn into agrifood technologies in 2021; an 85% increase over 2020. The theme of the year: doubling-down (and tripling, and quadrupling-down.) Agrifoodtech sectors that took off in response to the Covid-19 pandemic not only remained the most popular investment categories - they exploded with new deals.

Funding to eGrocery ventures grew an astounding 188% over 2020 and claimed more than a third of all agrifoodtech investments. The category was fueled by companies raising multiple eight, nine, and 10-digit US dollar rounds.

The trend was consistent worldwide. Several startups which raised the biggest rounds in 2021 launched a matter of

months beforehand.

In this year's report, AgFunder made some adjustments to our dataset. We're constantly working to improve our data through machine learning, manual curation, and guidance from the industry. But given the scale of growth we witnessed in 2021, we have 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 past data, as well as this year's investment figures. (For example, some later rounds for logistics companies that started in agrifood and have pivoted strongly into other sectors have been removed from the dataset - for more see p.59). The result, we feel, accurately reflects the sector today.

This week, AgFunder also announced the first close of our fourth fund on \$60 million - we're targeting \$100 million and are working to close by the summer. As ever, we are grateful to you, our readers, and always love to hear from you and receive feedback.

## The AgFunder team

# Cover & Section Images

Special thanks to our portfolio companies who contributed images to this year's report



**CH4 Global** is leading the development and commercialization of a unique red seaweed which can reduce the greenhouse gas emissions related to livestock farming.



**Modern Synthesis** has developed a microbial process that uses bacteria to 'weave' customizable bio-textiles and composites.



**Umaro Foods** is transforming seaweed into a protein-rich, nutritious, crispy, crunchy, umami-filled, superfood bacon alternative.



**Cargamos** is revolutionizing same-day delivery across Latin America through its distributed network of micro-fulfillment centers.



**Hyphen** manufactures robotic restaurant systems that can replace traditional makelines.



**Innate Biology** is developing the world's first supplement that mimics fasting to gain the associated benefits without actually having to fast.



**Aigen** is building solar-powered autonomous robots using computer vision to perform tasks like weeding.



**Hwy Haul** is a digital platform that connects farmers, distributors, wholesalers, and retailers directly with truckers.



# 2021 Overview

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# AgriFoodTech Funding Breakdown 2021

**\$51.7bn**

INVESTMENT

**3155**

DEALS

**4570**

UNIQUE  
INVESTORS

**\$3bn**

LARGEST  
DEAL

## Upstream

Ag Biotech, Farm Management Software & Sensing, Farm Robotics & Equipment, Bioenergy & Biomaterials, Novel Farming Systems, Agribusiness Marketplaces, Midstream Tech, Innovative Food

**\$18.2bn**

INVESTMENT

**1846**

DEALS

**\$500m**

LARGEST DEAL

## Downstream

In-Store Restaurant & Retail Tech, Online Restaurants & Mealkits, eGrocery, Restaurant Marketplaces, Home & Cooking Tech, Cloud Retail Infrastructure

**\$32.1bn**

INVESTMENT

**1241**

DEALS

**\$3bn**

LARGEST DEAL

# Key Insights

If you're like us and spent the past year following the day-to-day funding announcements from agrifoodtech companies, you probably have whiplash. Especially if you've been trying to keep up with the capital flooding into the eGrocery sector, which was by far the biggest investment category in 2021.

eGrocery also registered 188% year-on-year (YOY) growth, thanks to four 10-figure rounds - the biggest of which was a \$3bn investment into China's Furong Xingsheng. There were also five rounds of over \$500m.

Online grocery shopping was a nice-to-have back in 2019. It's now so engrained in consumer behavior that new entrants are building their brands around not just 'convenient' but near-instant delivery.

These models are so new that it remains to be seen whether the economics are feasible or sustainable long-term. For now, investors are buying in - and buying in big. Germany's dueling instant-delivery companies Flink and Gorillas both raised more than \$1 billion in 2021. Turkey's Getir came close with \$983m.

## Key category moves:

- Downstream investment increased 124% YOY to \$32.1bn, while deal activity increased 68%. Multiple billion-dollar rounds in the eGrocery sector are largely responsible for the change.
- eGrocery investment surged 188% YOY, accounting for 35% of all investment activity in 2021.
- All categories posted investment gains. The fastest-growing outside of eGrocery were Innovative Food (103% YOY), Online Restaurants & Mealkits (102%), and Cloud Retail Infrastructure (97.5%).
- The biggest categories by share of total funding outside of eGrocery were Cloud Retail Infrastructure, Innovative Food, and In-Store Restaurant & Retail Tech.
- The most active categories by deal volume were Innovative Food (13.4% of total deals), Midstream Tech (12.1%), In-Store Restaurant & Retail Tech (11.9%), and eGrocery (10.9%).

# Key Insights

Other sectors that took off in response to the Covid-19 pandemic continued their acceleration in 2021. Investments in Cloud Retail Infrastructure grew 97.5% YOY to \$4.8bn, accounting for more than 9% of all investment activity. The category was pulled up by four \$500m+ deals.



***It remains to be seen whether the economics of near-instant grocery delivery are feasible or sustainable long-term. For now, investors are buying in - and buying in big.***

Innovative Foods tied Cloud Retail Infrastructure for investment activity, growing 103% YOY. More than 430 companies raised funds, with familiar names such as Impossible Foods, NotCo, Perfect Day, Future Meat, and Nature's Fynd behind the category's biggest rounds.

Novel Farming Systems was neither among the biggest nor highest-growth sectors, but investors showed renewed interest in indoor farming tech.

Notably, greenhouse grower Local Bounti went public via SPAC deal in November.

We expect to see investment in various indoor farming formats accelerate during 2022.

## Mega rounds

- 2021 was the year of the mega-deal. Four rounds topped the \$1bn mark - all of them in eGrocery. China's Furong Xingsheng closed the biggest single round at \$3bn, while the US's goPuff raised two billion-dollar rounds.
- There were 13 additional \$500m+ deals in 2021, compared to seven in 2020. Categories were more diverse, covering Cloud Retail Infrastructure (CloudKitchens), Restaurant Marketplaces (Swiggy; Wolt), and In-Store Retail Tech (Trax).
- Only one upstream venture raised a \$500m+ mega-round: Impossible Foods.

# Key Insights

The US still dominates as the world's biggest agrifoodtech investment market, with US-based startups raising 41% of all capital and accounting for 34% of deals in 2021.

The US shows its relative maturity to the rest of the world by the diversity of startups raising growth and late-stage investment rounds during the year.

Six of the 15 biggest investment rounds were in upstream categories, involving the likes of alt-meat giant Impossible Foods, biologicals producer Pivot Bio, and bio-materials maker Bolt Threads.

Of the \$21bn raised in total by US-based companies, there was a 50/50 split between upstream and downstream categories.

Agrifoodtech investment in the rest of the world remains largely a downstream game. Of the \$30.7bn non-US companies raised in 2021, 70% went to downstream ventures; 44% went to eGrocery companies, whereas only 24% of US-bound capital went to the same category.

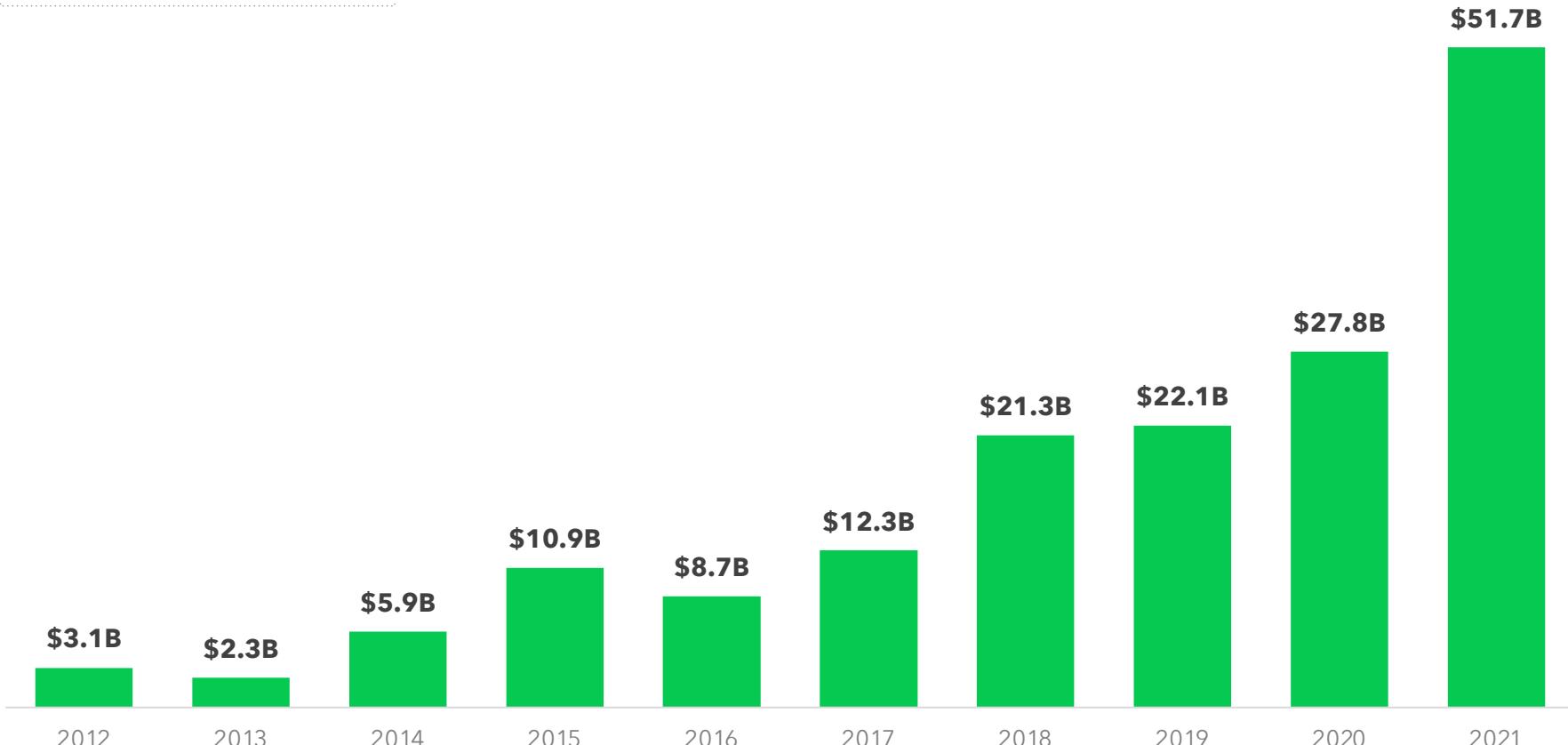
China's agrifoodtech funding landscape was synonymous with eGrocery in 2021. Of the \$7.3bn raised by Chinese agrifoodtech ventures, 75% went to eGrocery.

## Other geographic insights

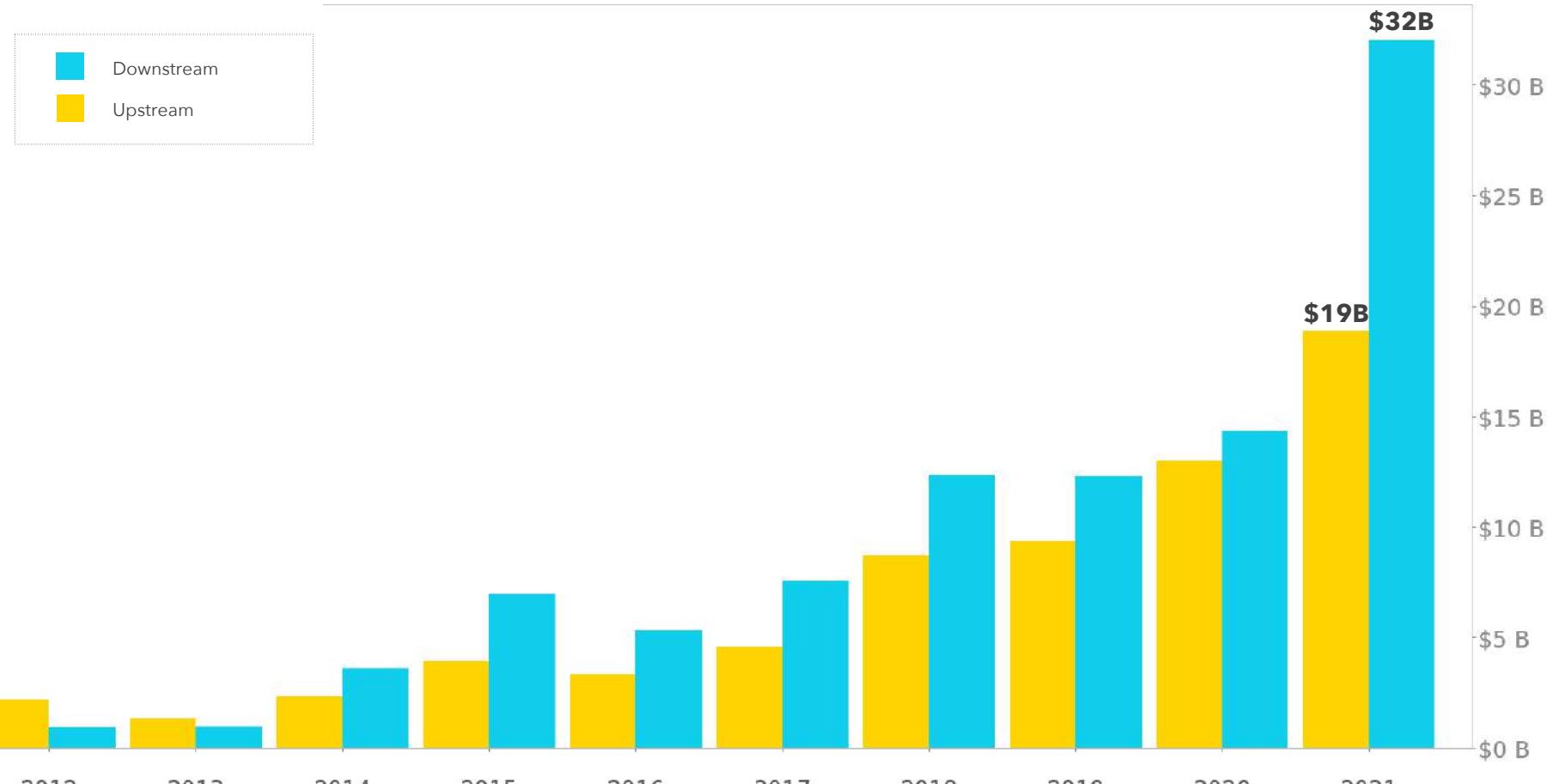
- A lack of growth- and late-stage deals in Europe may suggest that many of the continent's agrifoodtech startups are struggling to grow and scale.
- Many European countries are one-deal markets. In the Netherlands, eGrocery venture Picnic's single late-stage round accounted for 77% of the market's \$916m in total investment capital.
- Finland, Germany, and Spain had similar market dynamics to the Netherlands.
- Agribusiness Marketplaces were the slowest-growing category globally in 2021. In emerging markets, however, they're seeing strong investor interest. That's because in South Asia, Sub-Saharan Africa, and elsewhere, supply chains are heavily fragmented and agtech ventures tend towards vertical integration to gain market traction.

# Annual Financings | 2012-2021

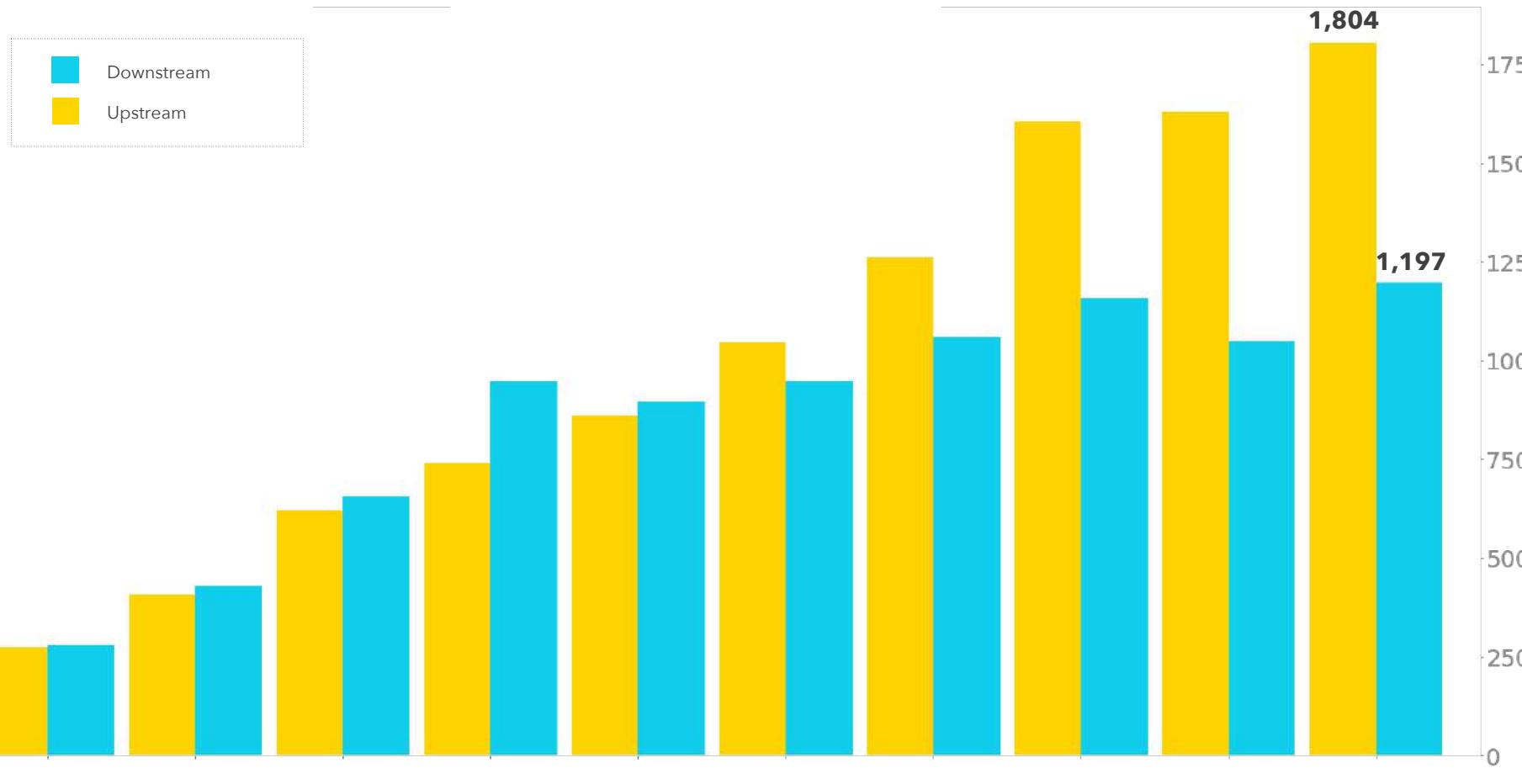
Current total as of Feb 28, 2022



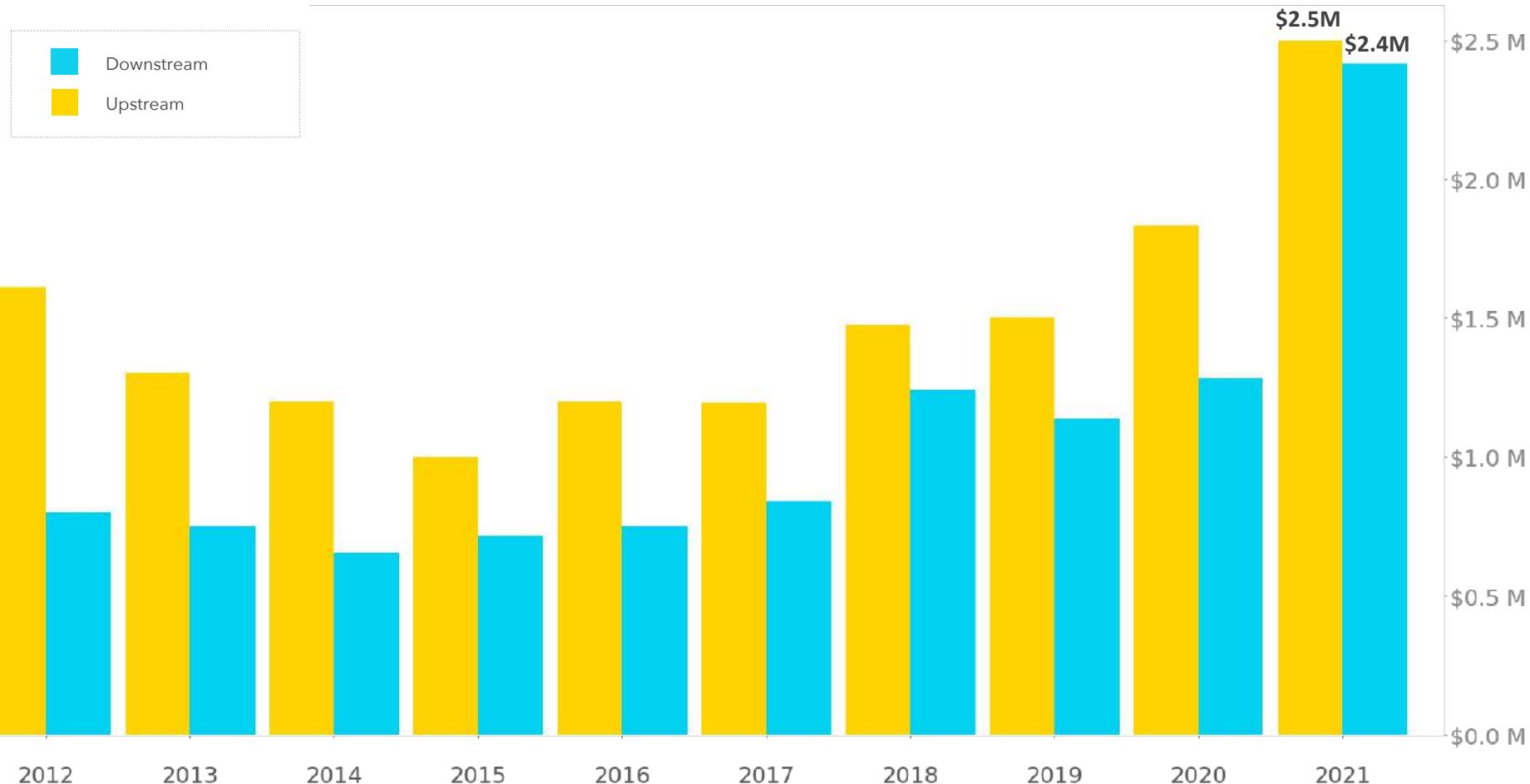
# Annual Financings | 2012-2021



# Deal Count | 2012-2021



# Median Deal Size | 2012-2020



# Deals by Category

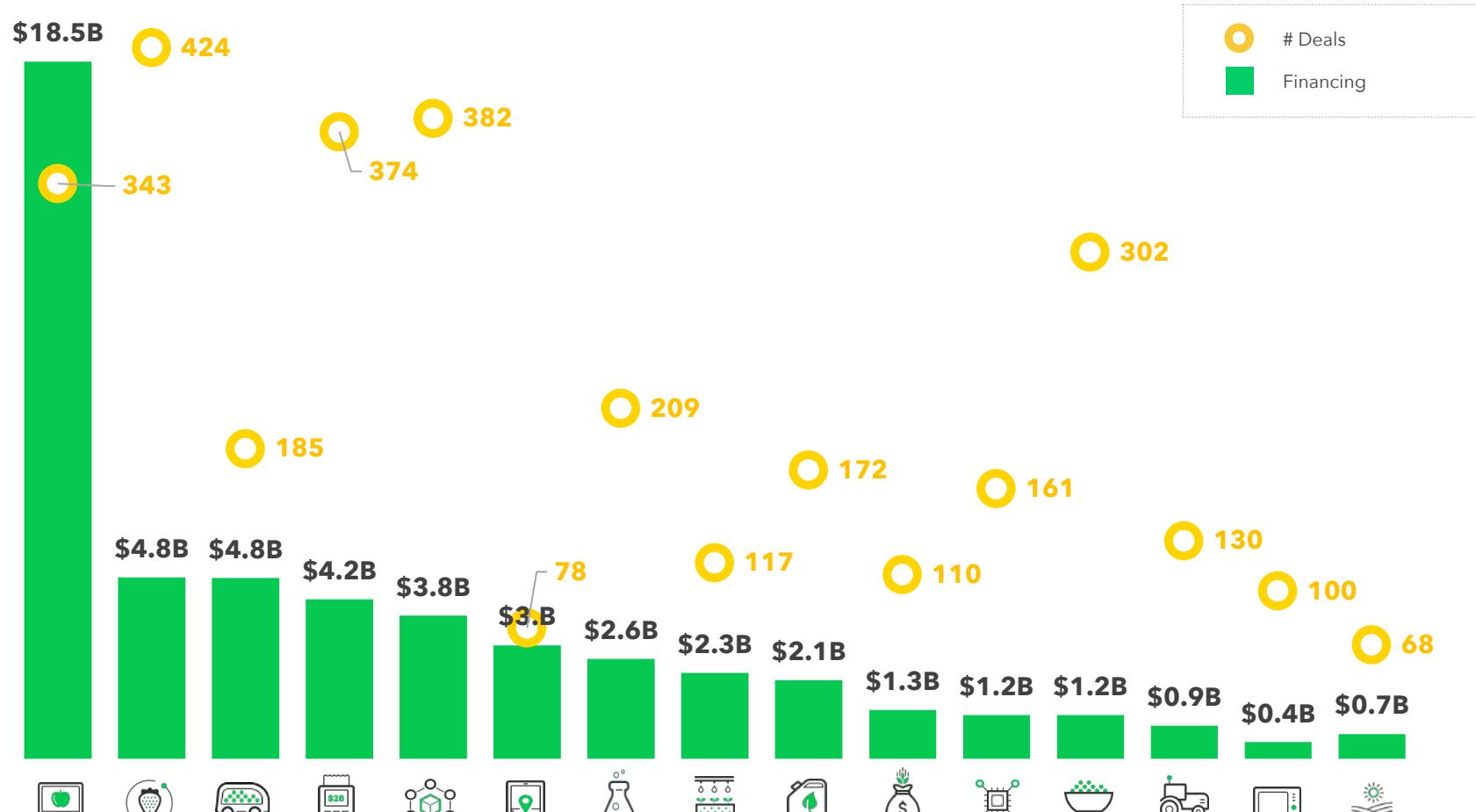
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Image courtesy of Aigen

# AgriFoodTech Category Definitions

<p><b>Ag Biotechnology</b>   On-farm inputs for crop &amp; animal ag including genetics, microbiome, breeding, animal health</p>	<p><b>Innovative Food</b>   Cultured meat, novel ingredients, plant-based proteins</p>
<p><b>Agribusiness Marketplaces</b>   Commodities trading platforms, online input procurement, equipment leasing</p>	<p><b>In-Store Retail &amp; Restaurant Tech</b>   Shelf-stacking robots, 3D food printers, POS systems, food waste monitoring IoT</p>
<p><b>Bioenergy &amp; Biomaterials</b>   Non-food extraction &amp; processing, feedstock technology, cannabis pharmaceuticals</p>	<p><b>Restaurant Marketplaces</b>   Online tech platforms-delivering food from a wide range of vendors</p>
<p><b>Farm Management Software, Sensing &amp; IoT</b>   Ag data capturing devices, decision support software, big data analytics</p>	<p><b>eGrocery</b>   Online stores and marketplaces for sale &amp; delivery of processed &amp; unprocessed ag products to consumer</p>
<p><b>Farm Robotics, Mechanization &amp; Equipment</b>   On-farm machinery, automation, drone manufacturers, grow equipment</p>	<p><b>Home &amp; Cooking Tech</b>   Smart kitchen appliances, nutrition technologies, food testing devices</p>
<p><b>Midstream Technologies</b>   Food safety &amp; traceability tech, logistics &amp; transport, processing tech</p>	<p><b>Online Restaurants &amp; Mealkits</b>   Startups offering culinary meals and sending pre-portioned ingredients to cook at home</p>
<p><b>Novel Farming Systems</b>   Indoor farms, aquaculture, insect &amp; algae production</p>	<p><b>Cloud Retail Infrastructure</b>   On-demand enabling tech, ghost kitchens, last-mile delivery robots &amp; services</p>
<p><b>Miscellaneous</b> eg, fintech for farmers</p>	 Upstream  Downstream  Both

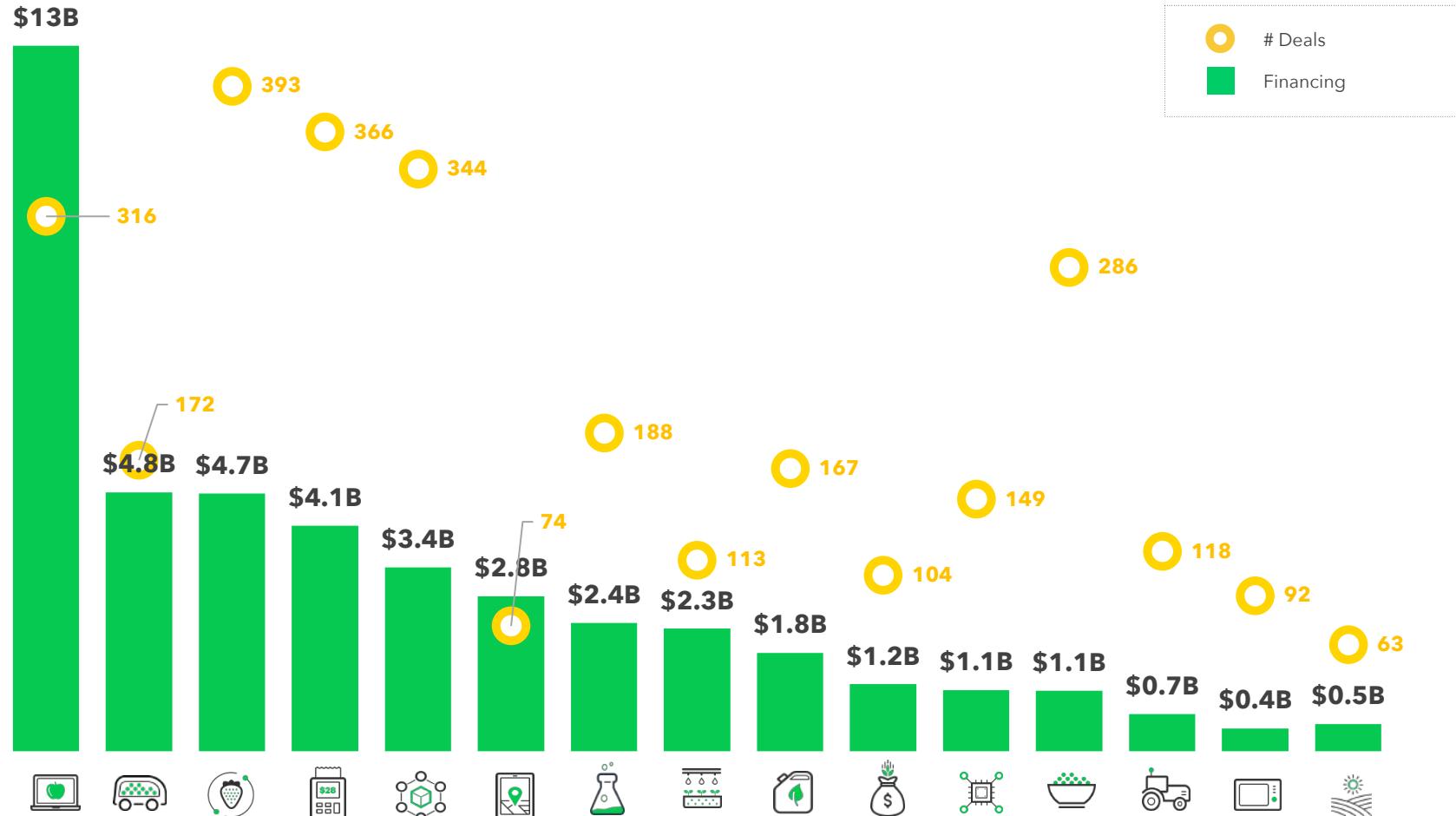
# 2021 Deal Volume & Activity by Category



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For category icons, see p16

# 2021 Deal Volume & Activity by Category (ex-China)

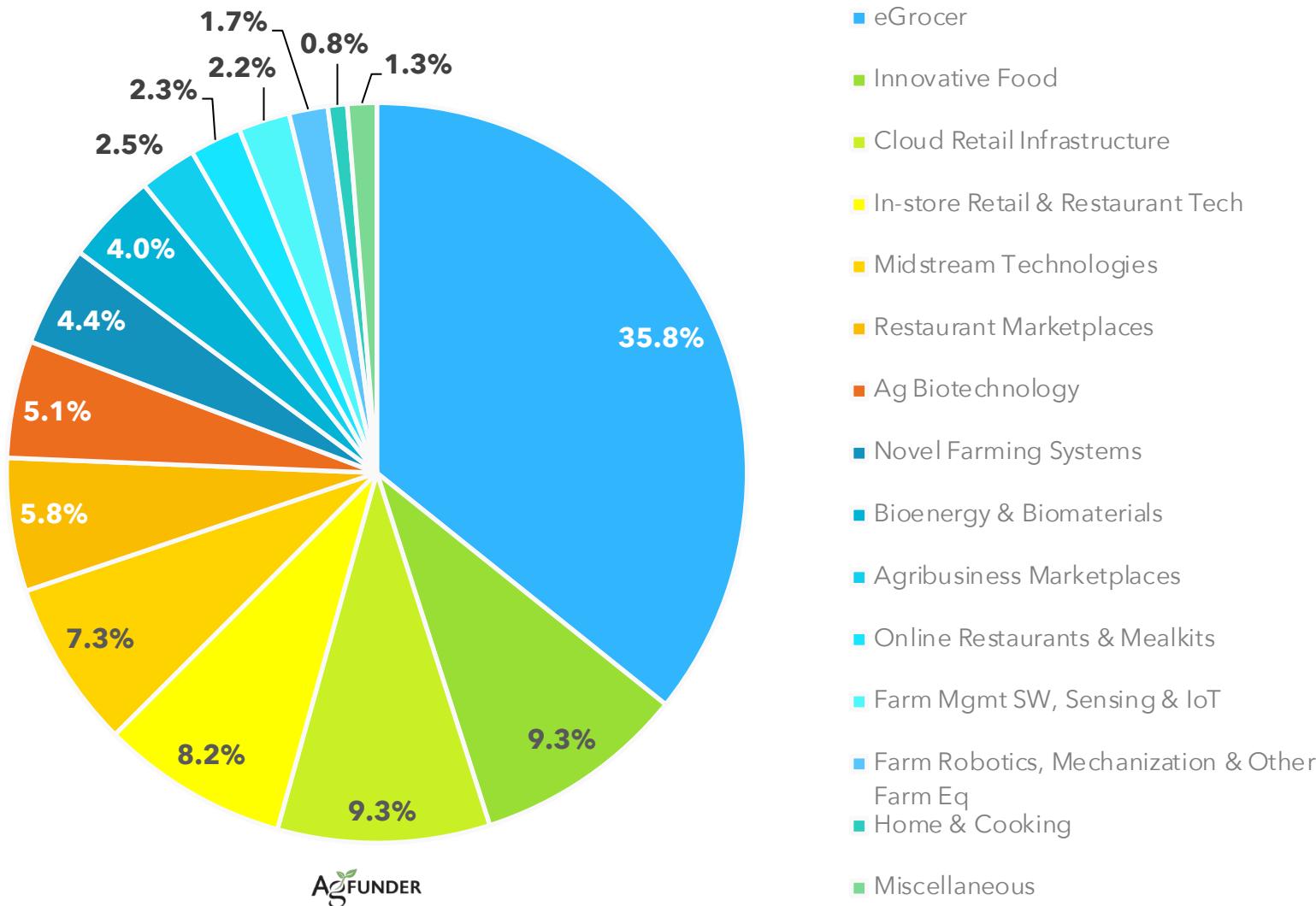


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For category icons, see p16

# 2021 AgriFoodTech Investment Share by Category

DEALS BY CATEGORY



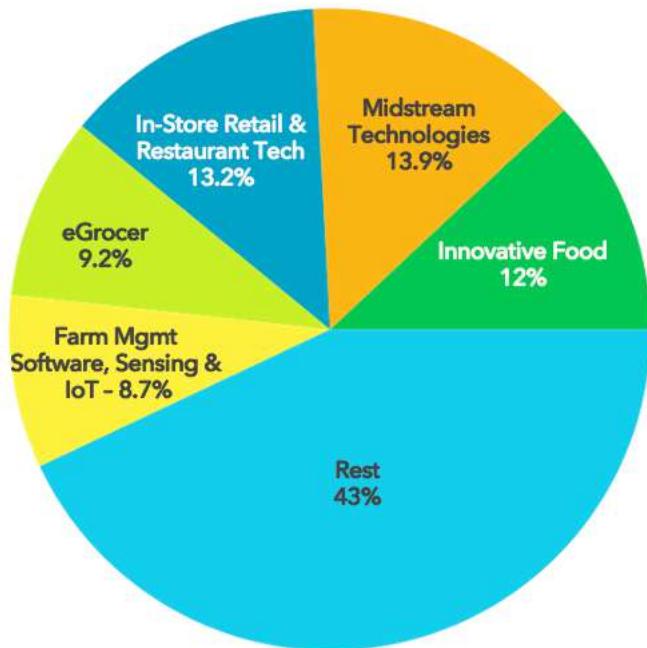
# Category Deal Activity 2020 vs 2021

Investors were consistent with their interests in 2021: the top five agrifoodtech investment categories simply reshuffled positions from 2020. Innovative Food companies topped the ranks, claiming 13.5% of deals, but only 9.6% of capital.

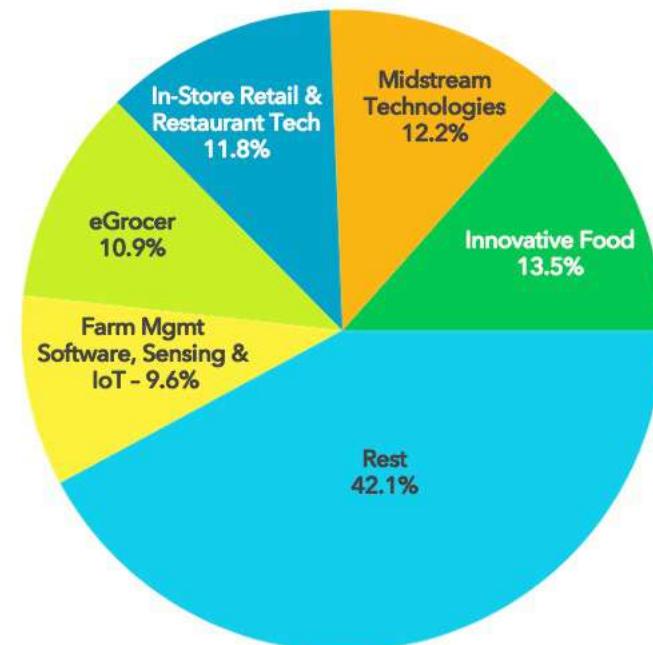
eGrocery companies claimed an overwhelming share of 2021's investment, claiming 35% of total 2021 funding but just 11% of deals. The category's deal count increased 37% from 2020, however. Farm Management Software companies, meanwhile, accounted for 9.6% of deals – an increase of 29% from 2020 – but took only 2.3% of funds.

Rounds got bigger in 2021 for Novel Farming Systems companies and Restaurant Marketplaces. Both categories fell in terms of deal activity, but still raised roughly 45% more capital than in 2020.

2020



2021





## Fund IV

We just held a \$60m first close on our \$100m fund.

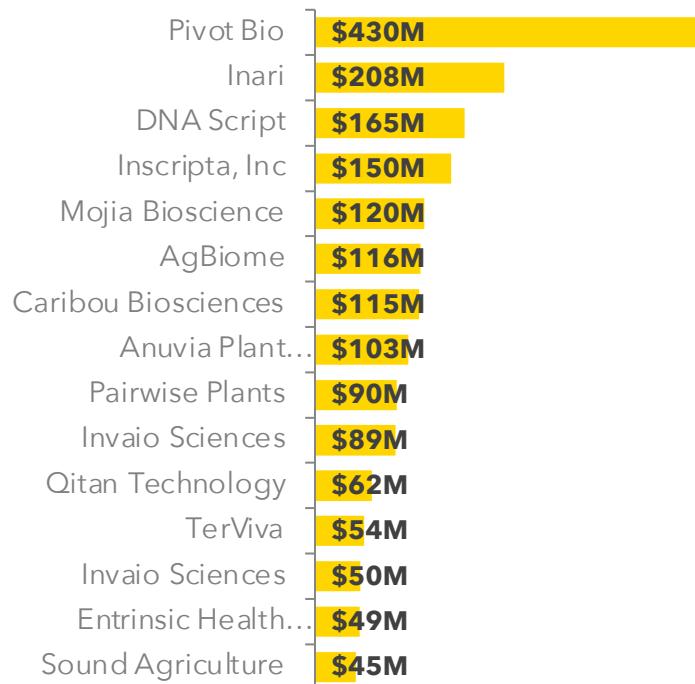
Join us and leading global LPs in the second close of our flagship fund before the end of the year.

**Learn more:** [agfunder.com](http://agfunder.com)



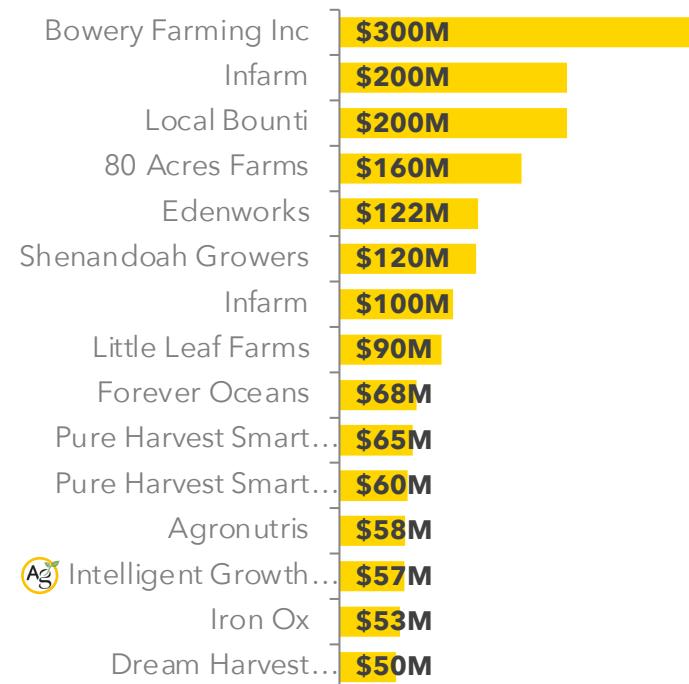
## Top Ag Biotech Deals

2021 saw a greater mix of technologies (gene editing, biologicals inputs, and molecular biotech) on the leaderboard than in 2020. Pivot Bio continues to dominate the biologicals game. Investors also backed generalist platforms for gene editing (Inscripta) and DNA synthesis platforms (DNA Script).



## Top Novel Farming Systems Deals

Germany's Infarm raised a mix of debt and equity across two rounds, following its \$170m Series C last year. US greenhouse grower Local Bounti scored \$200m in debt before its SPAC IPO in November. Pure Harvest raised an Islamic finance-compliant *sukuk* ahead of an equity raise.

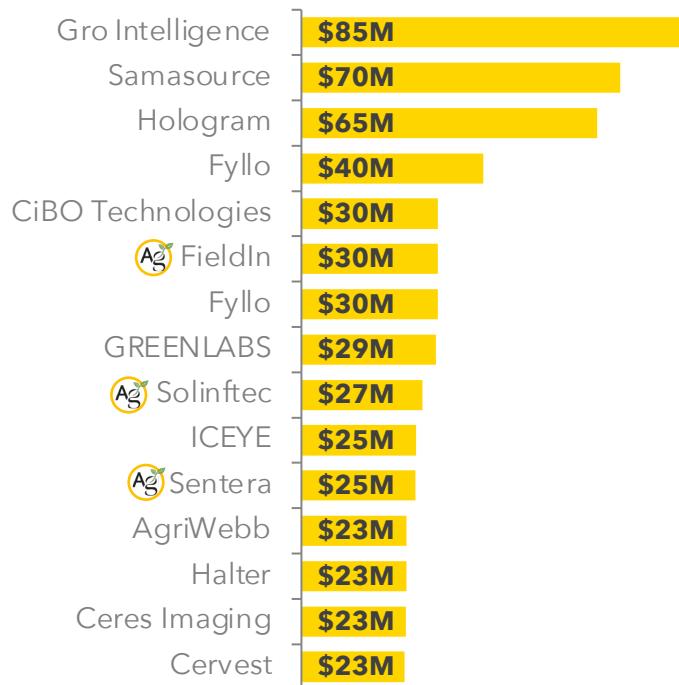


AgFunder portfolio company



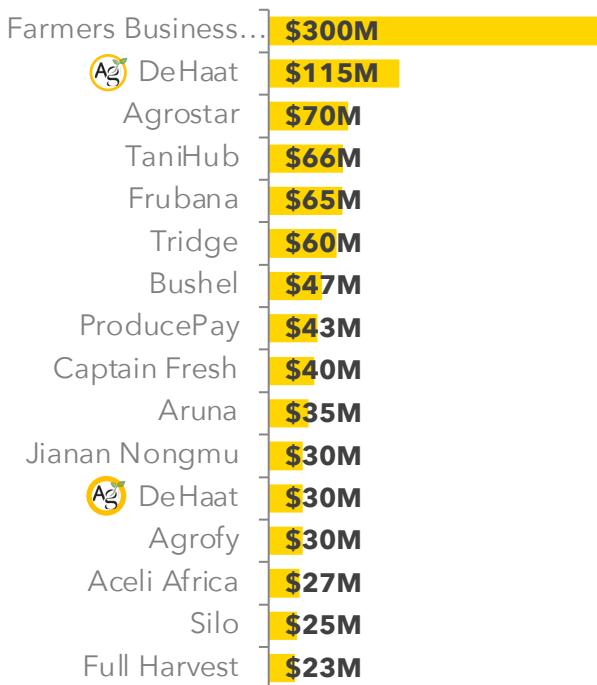
## Top Farm Management Software

Investment in Farm Management Software, Sensing & IoT grew 51% YOY. The top deal: New York-based Gro Intelligence, a Black woman-led company that started in Africa and is focusing on climate insights. Minnesota-based CiBO is capitalizing on growing interest in agri-carbon initiatives.



## Top Agribusiness Marketplaces

Agribusiness Marketplaces were the slowest-growing category in 2021. They're seeing more interest from investors in emerging markets, however, where supply chains are more fragmented and agtech ventures benefit from being vertically integrated to gain market traction.



AgFunder portfolio company



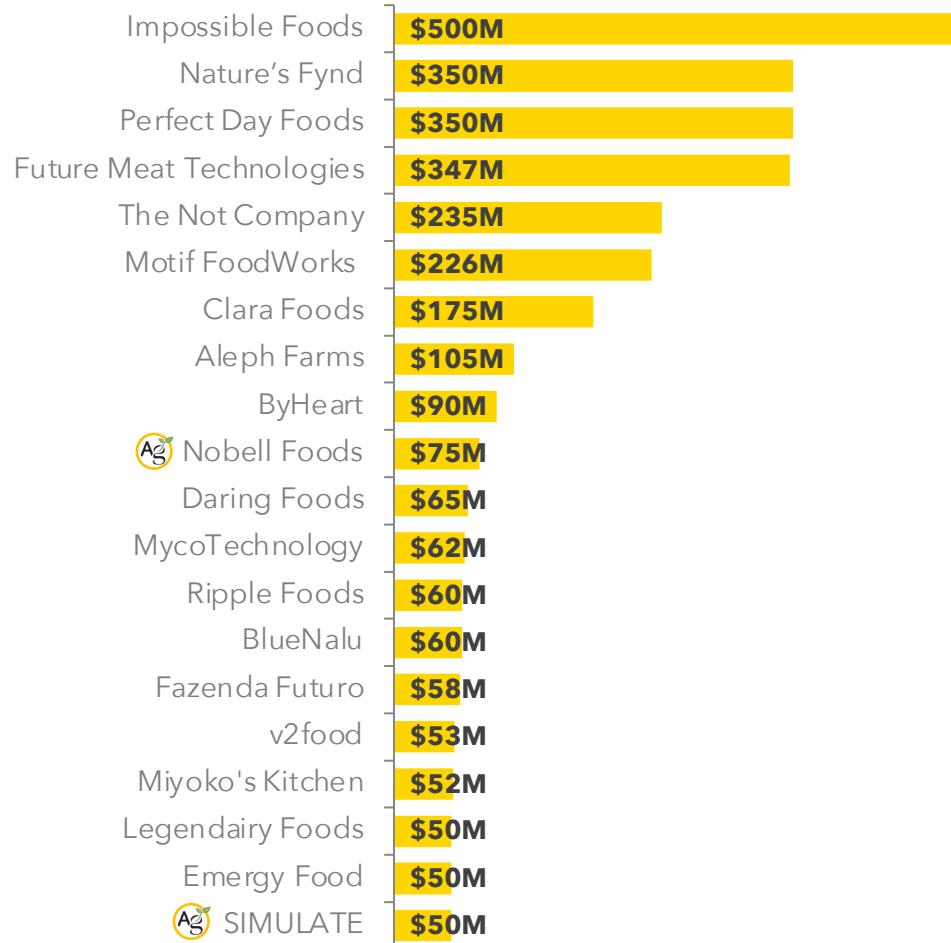
# Top Innovative Food Deals

→ Innovative Foods had the most investment activity in 2021, with more than 430 companies raising funds. There were a lot of familiar names behind the category's biggest rounds, covering the spectrum of the early generation of alt-meats and dairy: plant-based (Impossible Foods and Not Company), cellular (Perfect Day, Future Meat), and fermentation (Nature's Fynd).

→ Mirae Asset Global Investments re-upped leading another \$500m round for Impossible Foods, following participation in a \$500m investment in 2020. Impossible has raised more than \$2bn to date.

→ Off the leaderboard, among newer startups, differentiation in the category is becoming a challenge.

→ Innovative Food companies are emerging in smaller markets, signaling growing popularity of plant-based and alternative diets worldwide. Examples include Mexico's plant-based meat company Plant Squad, which raised the smallest round in the category (\$20,000).



AgFunder portfolio company



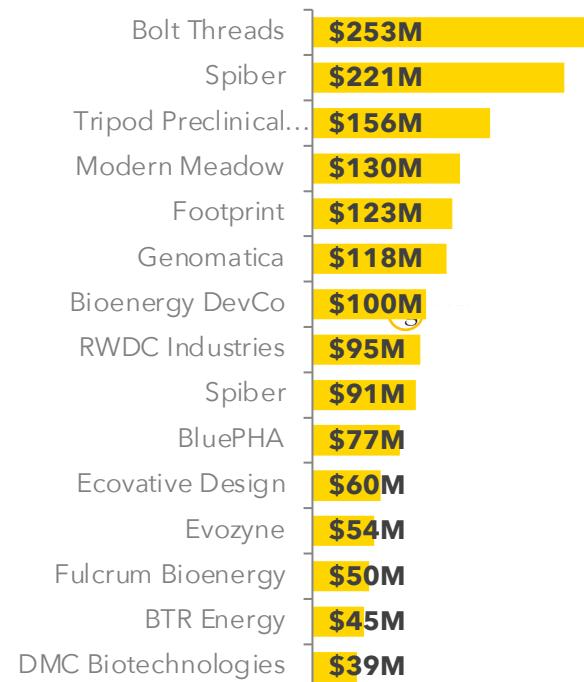
## Top Midstream Tech Deals

Most of the top Midstream Tech deals focused on bolstering supply chains. Solutions range from robotics (Dexterity) to software (FourKites) to procurement, and logistics (Choco, Ninjacart, GudangAda). Investors backed companies in the US, China, Germany, India, Indonesia, Israel, Kenya, and elsewhere.



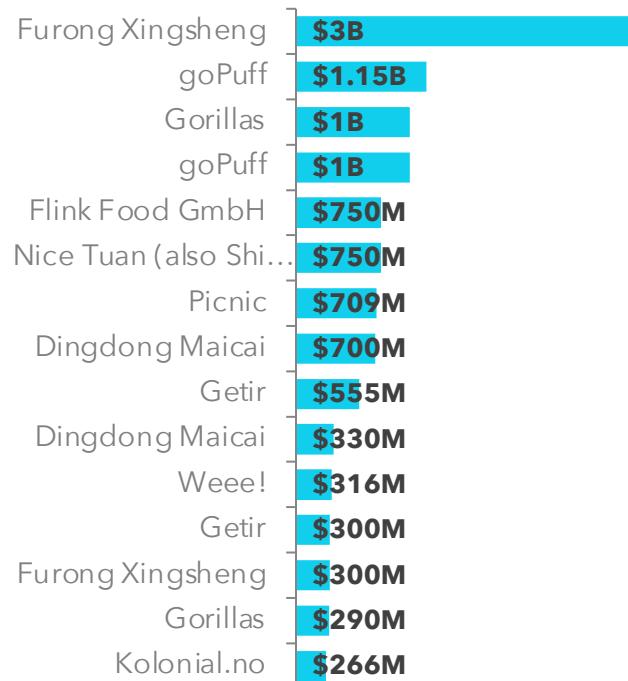
## Top Biomaterials & Bioenergy Deals

The Biomaterials and Bioenergy companies we track are rooted in the agrifood sector. Japan's Spiber is making sustainable fabrics and materials from sugars and proteins. Bolt Threads in California and Modern Meadow in New Jersey make plant-based leather.



## Top eGrocery Deals

Investment in the eGrocery category surged an astounding 188% YOY. Four companies raised more than \$1bn, including China's Furong Xingsheng, which had the single biggest round of the year (\$3bn). Three additional companies raised more than \$500m each.



## Top eGrocery Deals ex-China

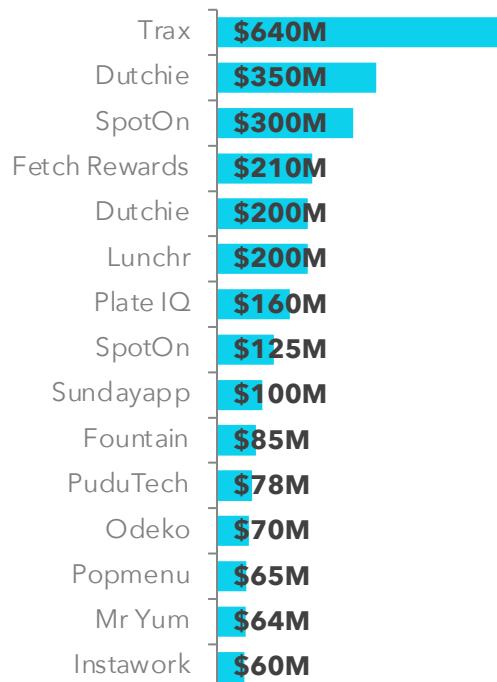
Investors backed eGrocers in 50 countries. Chinese players claimed 30% of the \$18.5bn invested in the category; outside of China, US-based goPuff raised the most (\$2.15bn). Germany's instant delivery services Gorillas and Flink each raised more than \$1bn; while Turkey's Getir came close at \$983m.





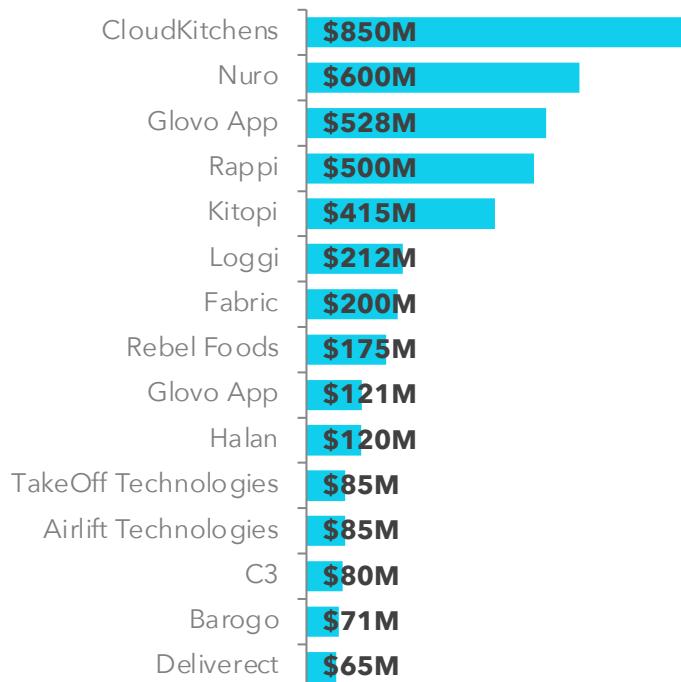
## Top In-Store Retail & Restaurant Tech

Restaurant Tech was one of 2021's busiest agrifoodtech sectors in terms of both investment volume and deal numbers. But it didn't see much YOY growth in deal activity; a small number of big rounds are responsible for the category's 62% YOY growth in dollars invested.



## Top Cloud Retail Infrastructure

Cloud Retail Infrastructure was the biggest category in terms of growth by deal count, increasing 61% over 2020. Investments in the sector grew more than 97% to \$4.8bn, pulled up by four \$500m+ deals.



# Deals by Stage

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# Investment Volume by Stage | 2012-2021

→ A quick way to account for agrifoodtech investing in 2021: take dollar investment activity in 2020 and basically double it.

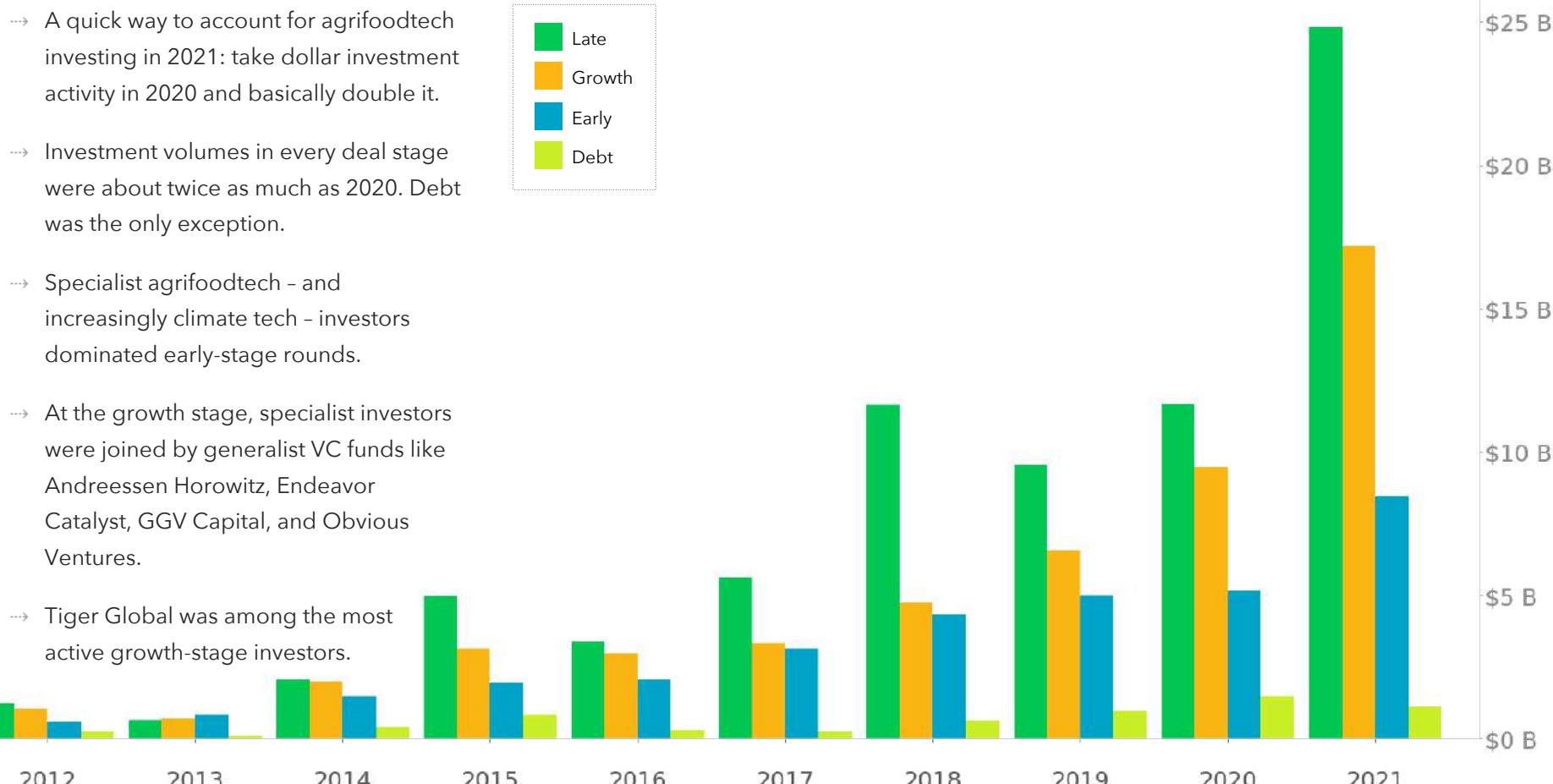
→ Investment volumes in every deal stage were about twice as much as 2020. Debt was the only exception.

→ Specialist agrifoodtech - and increasingly climate tech - investors dominated early-stage rounds.

→ At the growth stage, specialist investors were joined by generalist VC funds like Andreessen Horowitz, Endeavor Catalyst, GGV Capital, and Obvious Ventures.

→ Tiger Global was among the most active growth-stage investors.

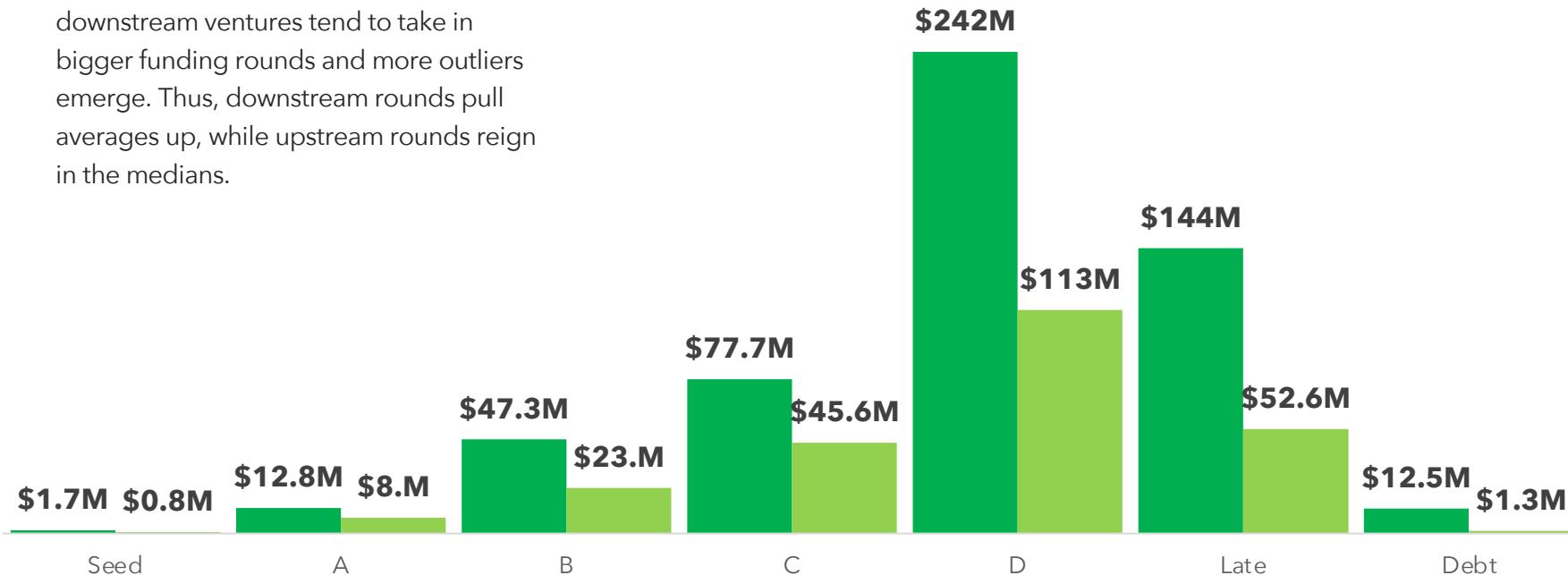
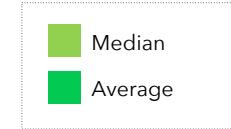
- Late
- Growth
- Early
- Debt



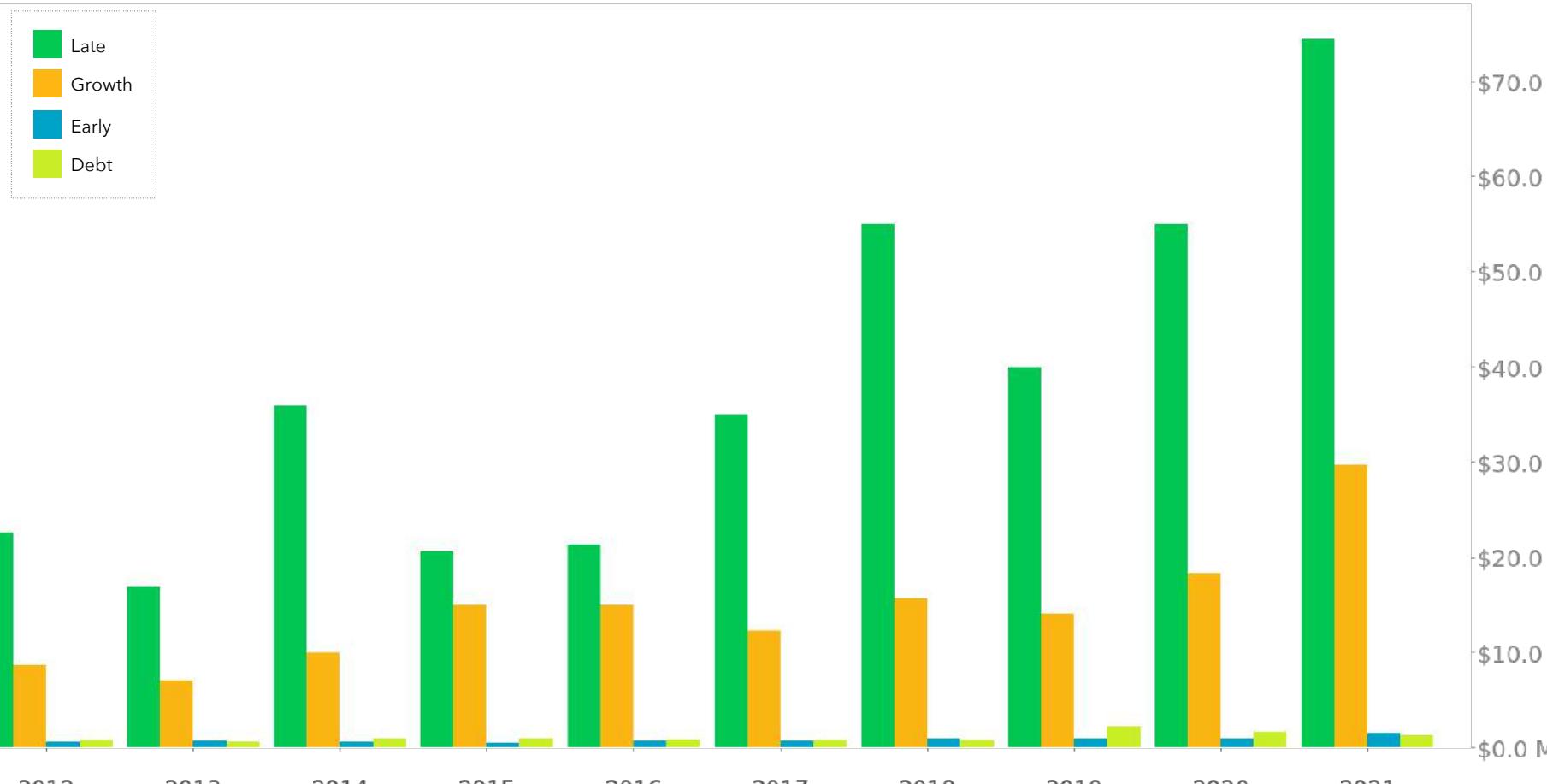
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# Average & Median Deal Size by Stage | 2021

- Median and average deal sizes differ for upstream and downstream ventures.
- At the seed and Series A stages, the two trend closely together in both upstream and downstream categories.
- In later stages, the disparities widen, as downstream ventures tend to take in bigger funding rounds and more outliers emerge. Thus, downstream rounds pull averages up, while upstream rounds reign in the medians.



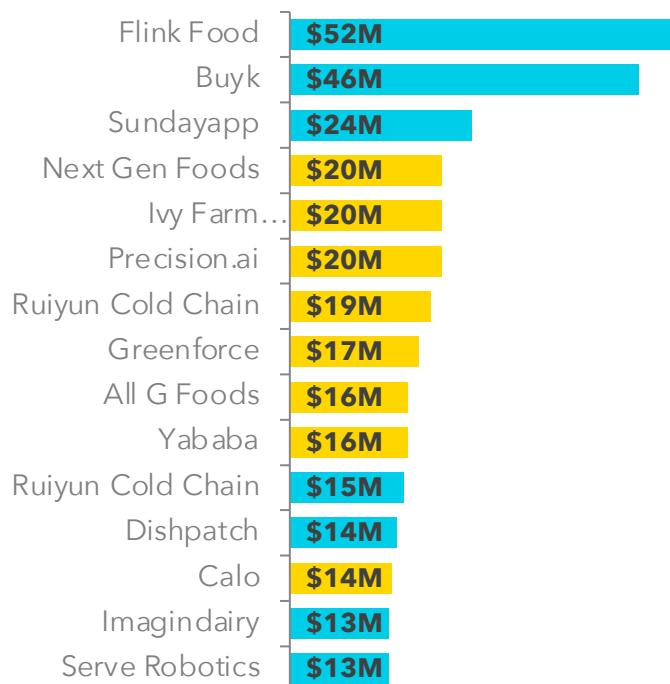
# Median Round Size by Stage | 2012-2021



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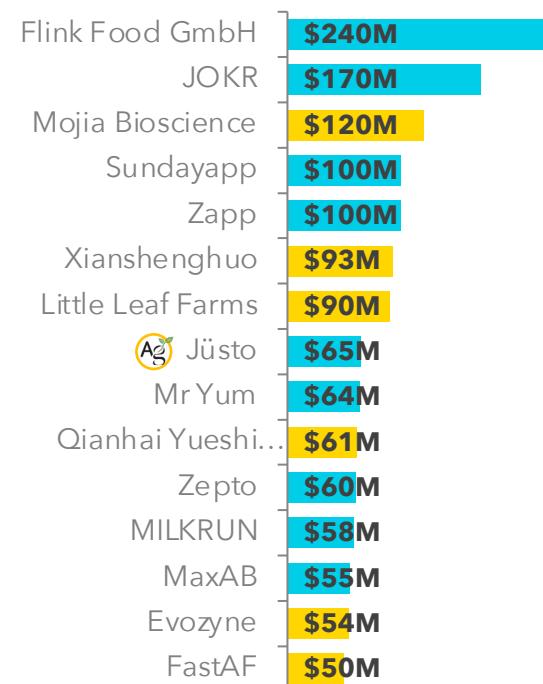
# Top 15 Seed Deals

Flink's 2021 fundraising epitomizes the pace of acceleration and froth in the eGrocery sector. The company launched in September 2020; by March last year, it had raised two seed rounds (one of \$52m!), followed by a \$240m Series A in June, then by an astounding \$750m Series B in December.



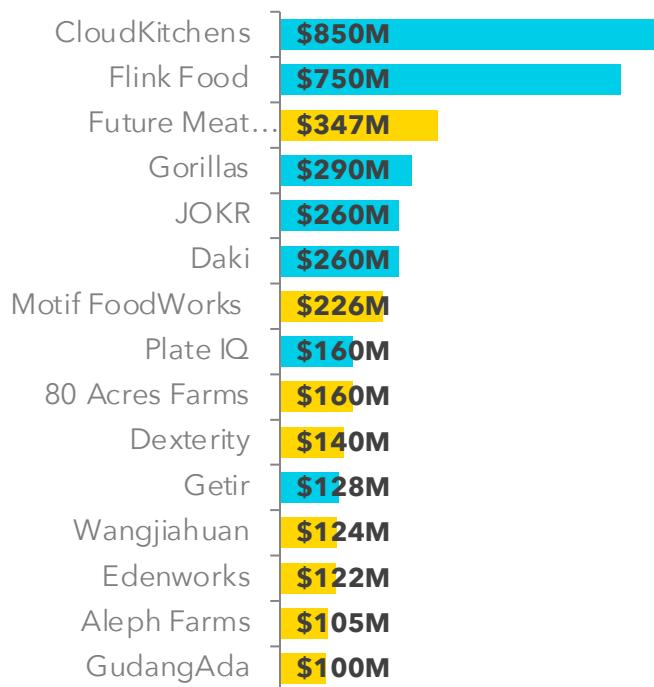
# Top 15 Series A Deals

There was a good mix of upstream and downstream technologies in the top Series A deal list. Downstream ventures claimed a larger share of capital, however. Flink, JOKR, and Zapp are all eGrocery platforms. Upstream, China's Mojia is an Ag Biotech venture and Xianshenghuo makes cold-chain tech.



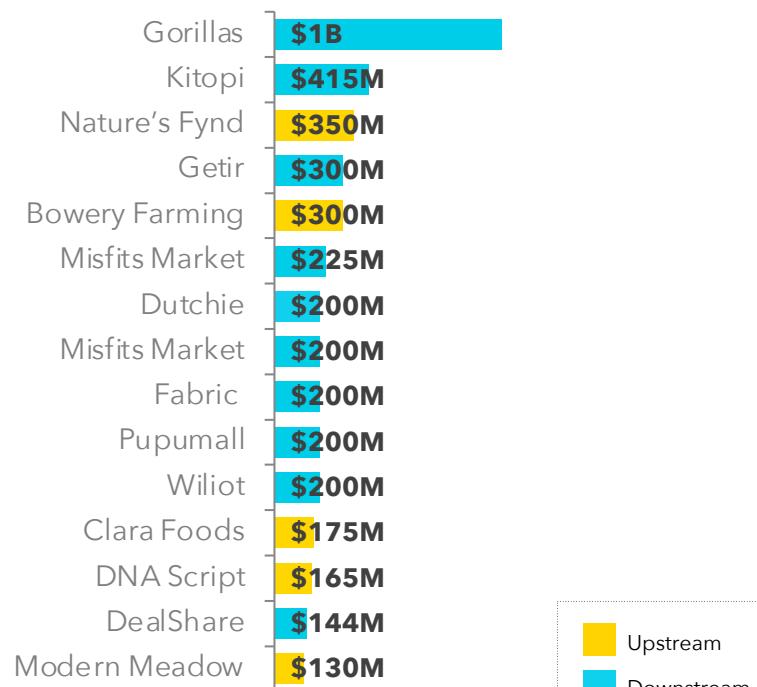
## Top 15 Series B Deals

Most of the top downstream Series B deals went to instant eGrocery delivery companies. CloudKitchens (Cloud Infrastructure) and Plate IQ (Restaurant & Retail Tech) were the only exceptions. Upstream rounds were dominated by Innovative Food and Novel Farming Systems ventures.



## Top 15 Series C Deals

Talk about a mixed-bag: instant eGrocery (Gorillas; Getir), Cloud Infrastructure (Kitopi), Ag Biotech (Clara; DNA Script), and Biomaterials (Modern Meadow) all closed large Series C rounds. US eGrocer Misfits Market, which started out selling 'ugly produce,' raised a two-part, \$425m round co-led by SoftBank.



# Top Late Deals

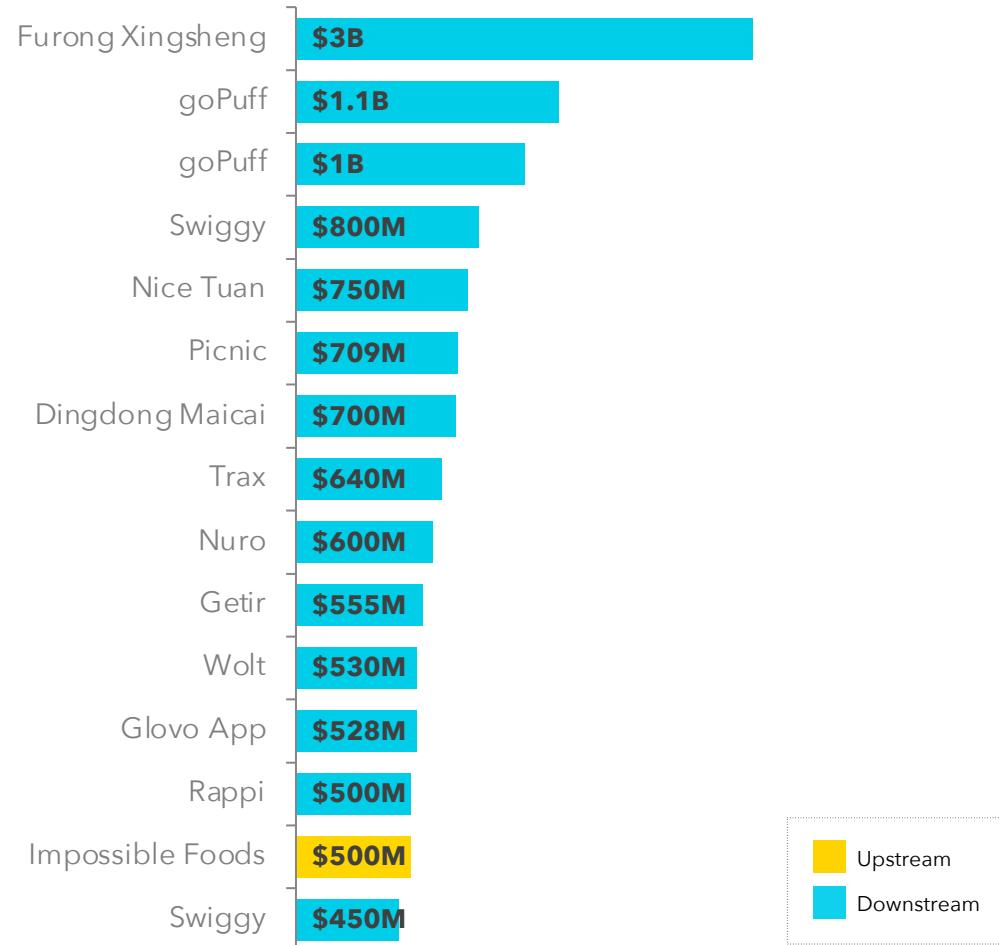
→ There were a total of 17 \$500m+ deals in 2021 (three were growth-stage).

Upstream ventures scored only one \$500m+ deal, so naturally this is a downstream-dominated list (as usual).

→ Seven of the top 15 late-stage deals were eGrocery companies. All were in the US, Europe, or China. The latter's Furong Xingsheng raised \$3.4bn in total during 2021; that's 6.5% of all agrifoodtech investment capital for the year.

→ After eGrocery, Cloud Retail Infrastructure dominated the list, with large late-stage rounds for US-based Nuro, Colombia's Rappi, and Spain's Glovo.

→ India's Swiggy, a Restaurant Marketplace, was among the rare non-eGrocery companies to raise more than \$1bn in total during 2021.

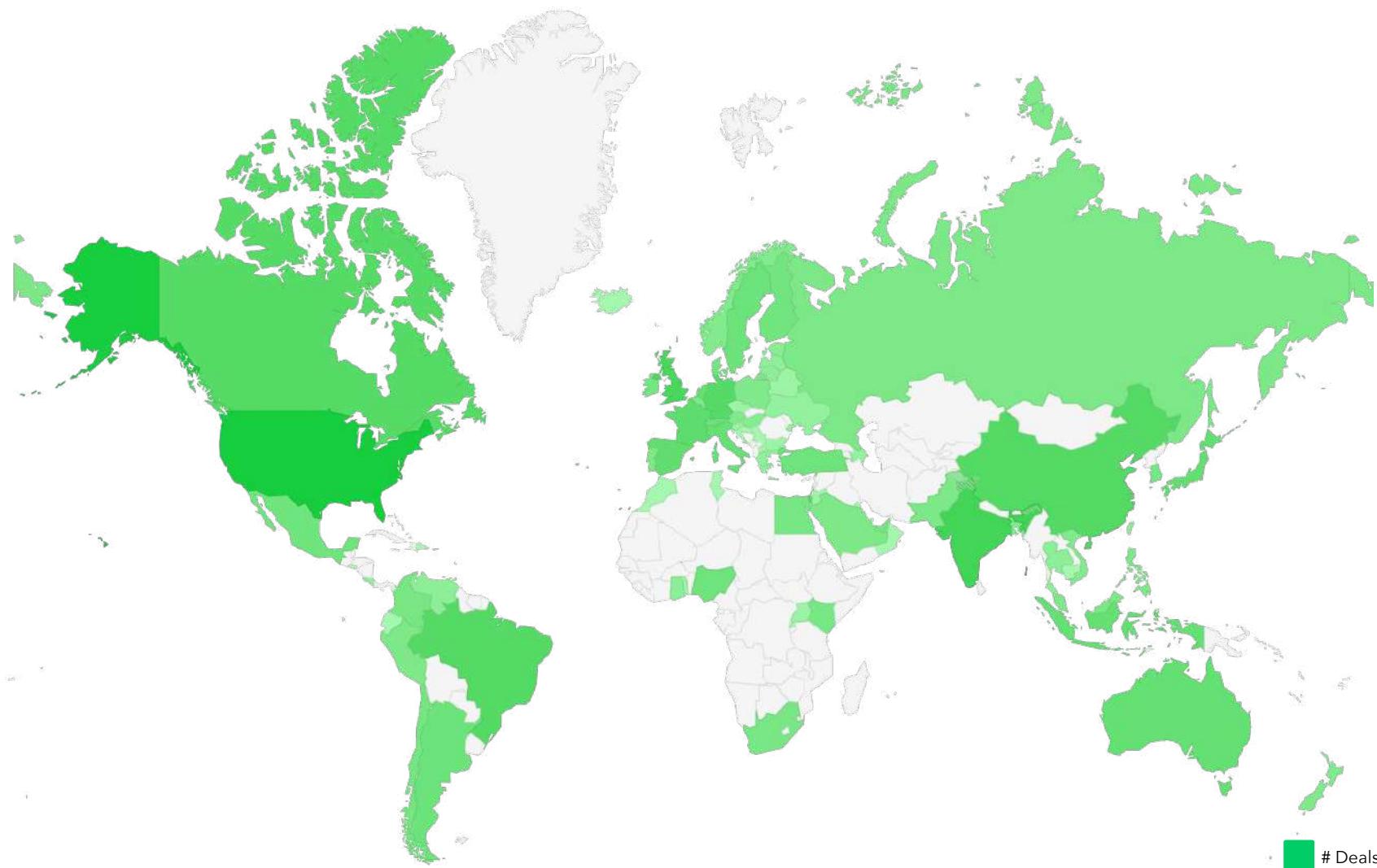


# Deals by Geography

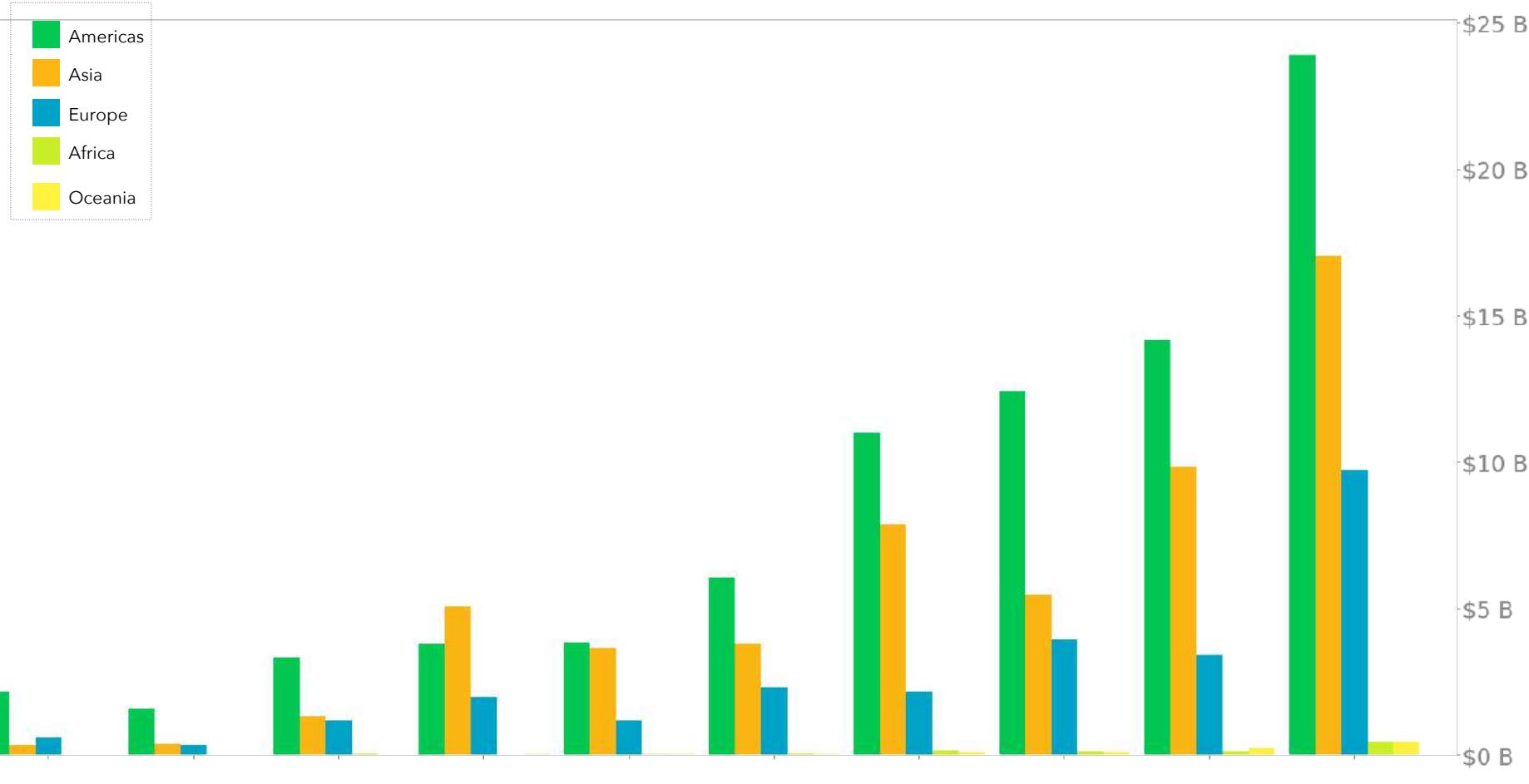
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Image courtesy of Cargamos

# Global Investment World Map | 2021

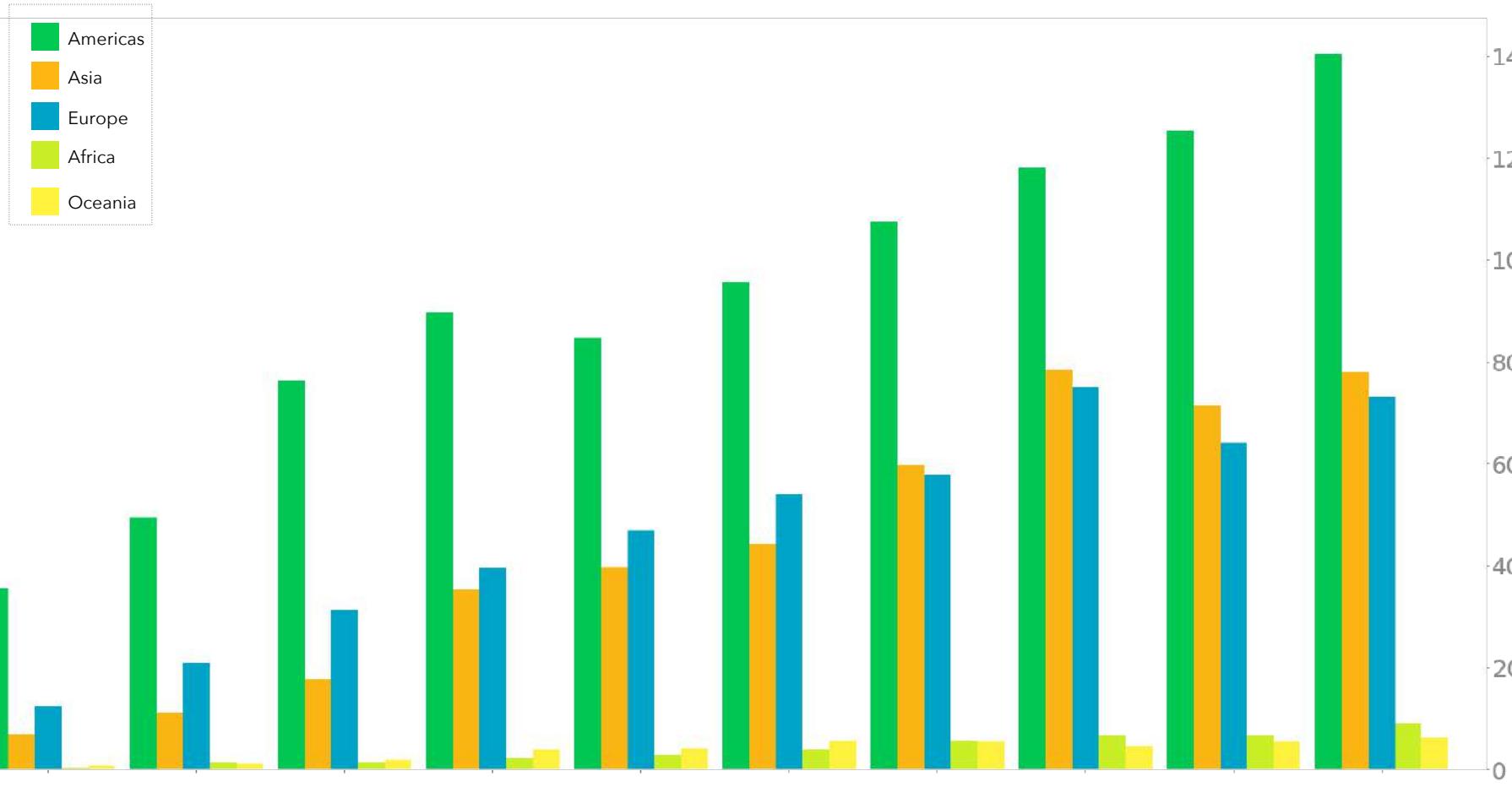


# Global Investment by Region | 2021



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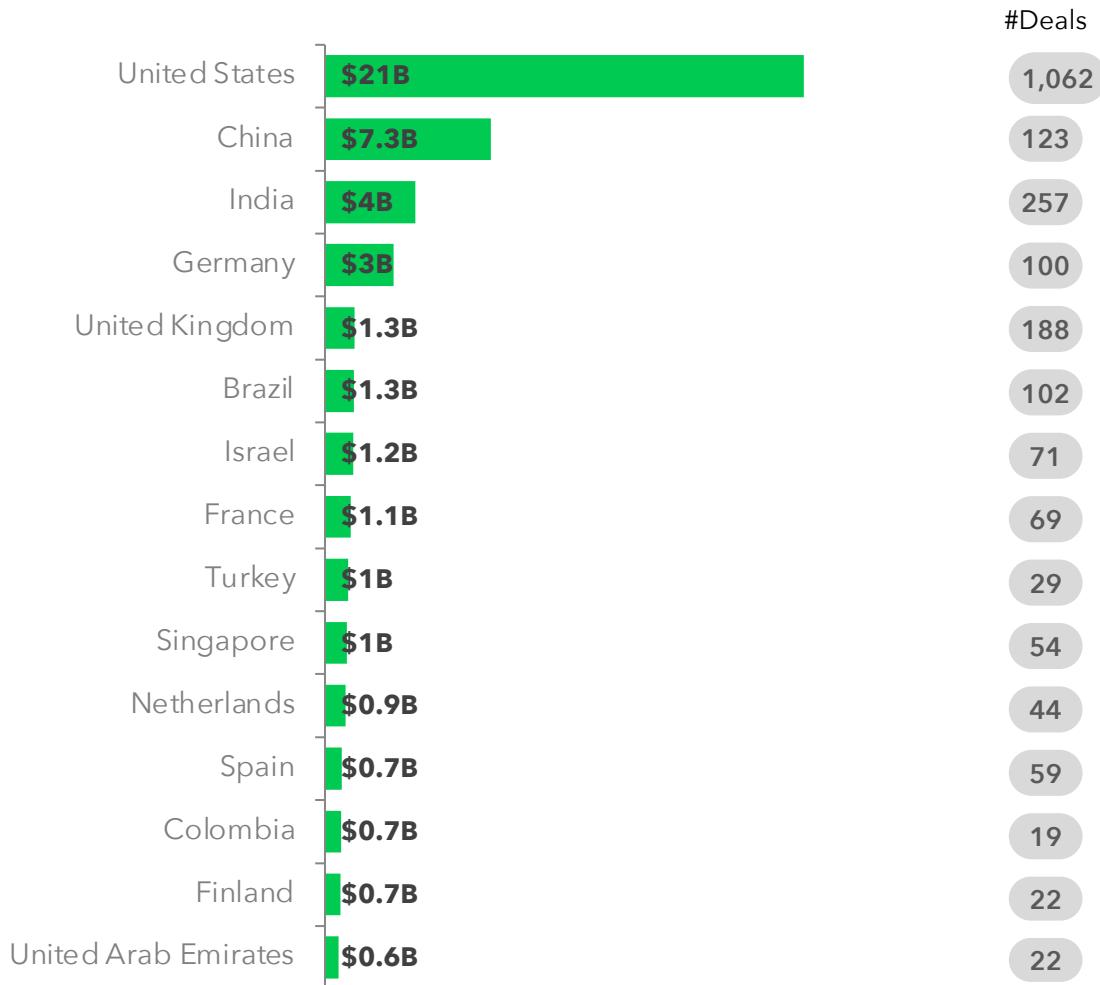
# Global Deal Activity by Region | 2021



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# Top 20 Countries by Investment

- The US still attracts the lion's share of agrifoodtech capital, despite solid ecosystem growth and investor interest in Asia and Europe. US-based companies accounted for 41% of investment capital and 34% of deals.
- Chinese agrifoodtech investing was synonymous with eGrocery in 2021. Of the \$7.3bn raised by Chinese agrifoodtech ventures, 75% went to the eGrocery category. China's biggest category by deal count was Midstream Technologies (32 deals), but the sector raised only about \$400m, or 5.5% of China-bound capital.
- One company - eGrocery venture Picnic - accounted for 77% of the Netherlands' \$916m in total agrifoodtech funding, which it raised in a single late-stage round. That left 38 companies to share the remaining \$207m across 43 rounds.
- Finland, Germany, and Spain displayed similar market dynamics to the Netherlands.



# China Insights from

**Winnie Leung, vice president, Bits x Bites**



## What were the key trends and developments in agrifood venture funding in your region in 2021?

Few priorities are higher in the Chinese government agenda than food self-sufficiency and carbon neutrality. After two decades of farmland consolidation, larger field operations now have the scale and skills to use precision ag solutions to boost yield and manage inputs.

The safety certificates recently issued to local Chinese breeds of GM soy and corn are taking us one step closer to local GM crop farming and triggering breeding innovations.

Tightening environmental regulations for chemical production have effectively boosted biomanufacturing of essential nutrients.

It's worth watching how companies developing farm management software and ag biotechnology will use these

top-down forces to their advantage and grow.

## What are your expectations for 2022?

2022 will be the year of biotechnology.

China has cost and supply chain advantages in fermentation. As the demand for capacity grows alongside continued fermented protein innovation, China is in a good position to push the pedal.

The country's 14th Five-Year Plan for agriculture set goals to develop cellular agriculture and synthetic dairy for the first time; this gives yet another reason to follow how this happy collision of factors will unfold.

# Europe Insights from

**Kevin Camphuis, co-founder, ShakeUpFactory**



## What were the key trends and developments in agrifood venture funding in your region in 2021?

Europe is showing strong dynamics in all categories, with every country gradually consolidating its own diverse ecosystem of specialization. Year after year we see Europe consolidating its excellence in Novel Farming Systems, Innovative Food, and Ag Biotech - as well as some more niche areas like fintech for restaurants, or robotics for farmers or warehouses.

2021 has also confirmed the emergence of a solid ecosystem of European investors and stronger interest from international VC funds towards European startups - some of these funds having even setup dedicated teams in Europe.

## What are your expectations for 2022?

We'll probably not experience the the same frantic

investment activity around 'quick commerce' that we had in 2021. However, the necessary transformation of the whole food system and of its numerous local actors across Europe will sustain the emergence of more local startups - as well as the growth of its most prominent players.

2022 will also be the year of deployment of the new six-year European Common Agricultural Policy, adding more pressure on upstream actors to adopt new practices and technologies.

# India Insights from

**Mark Kahn, managing partner, Omnivore**



## What were the key trends and developments in agrifood venture funding in your region in 2021?

In 2021, for the first time ever, the number of upstream agrifoodtech deals surpassed downstream deals. While downstream investments saw big-ticket funding in the Restaurant Marketplaces and eGrocery categories, the Covid-19 pandemic helped investors become more aware of the fundamental problems across value chains and the sheer scope of business opportunities.

Broadly, concerns around the impact of climate change, a greater consumer focus on health and nutrition, and the necessity to improve efficiency in ag supply chains catalyzed investments in upstream technologies in 2021. The ever-rising cost of inputs continues to pose a significant threat to farmer profitability and access to nutritious food. Therefore, farm tech has emerged as vital to the future of Indian

agriculture and food systems.

## What are your expectations for 2022?

We have an accelerating pace of investment in this space, complemented by a superlative degree of talent. I am hopeful that 2022 will be the year when multiple Indian agritech unicorns will rise. This year will also see significantly higher farmer adoption of agritech solutions and the continuing digitalization of rural India. The climate focus to date has been peripheral in India despite the country's acute vulnerability to climate change. We expect more entrepreneurs to work towards innovations for climate change mitigation and building resilience within agricultural communities. We are also eager to see – and even catalyze – more innovations in agrifood life sciences, which will be critical for ushering in commercially viable sustainable agriculture.

# Israel Insights from

**Ido Yosovzon, agrifoodtech sector lead,  
Start-Up Nation Central**

## What were the key trends and developments in agrifood venture funding in your region in 2021?

The sector is maturing with larger rounds in both ag and food. Foodtech investments have seen significant growth in 2021; it was the first year in which foodtech companies raised more funds and more rounds than agtech companies. Israeli cultivated meat startups were particularly successful in raising capital, attracting the highest amount of funds. 2021 saw the first mega rounds (\$100m+) in alternative proteins in Israel, underscoring investors' belief in the field's potential. The growing round sizes are characterized by a growing number of foreign investors entering the Israeli agrifood space.

## What are your expectations for 2022?

The agrifoodtech sector is in an advantageous position to benefit from the growing awareness and attention directed



toward climate and sustainability-related technologies, and the related consumer demand trends. Solutions associated with beneficial environmental impact show untapped potential to unlock new investment and growth opportunities; which, in turn, can add value and resources to the entire ecosystem.

Start-Up Nation Central will continue to support the growth of the agrifoodtech sector in Israel by generating more global cooperation and funding opportunities for companies that are operating in the field.

# Latin America Insights from Glocal.

**Hernan Castro, chief financial officer, GLOCAL (HC) and Bernardo Milesy, managing director, GLOCAL (BM)**

## Overall, what were the key trends and developments in agrifood venture funding in Latin America last year?

**BM:** Downstream solutions continued to get VCs' attention. While the effects of Covid-19 are fading away, some of the social behaviors it created have become deeply rooted. So food delivery, dark kitchens, and online grocery are very hot right now. Those solutions that mix comfort, ease, and affordability are getting more and more traction not only from users, but also from investors.

**HC:** As regards upstream technologies, 2021 was a year of momentum for ag biotech and alternative proteins. Globally, social and environmental consciousness is bolstering investments in these sectors.

**BM:** As we were expecting, ag fintech solutions started a new wave of entrepreneurship. Traceability has also appeared on the scene, as startups and companies come to understand

the importance of tracking what happens along the whole supply chain.

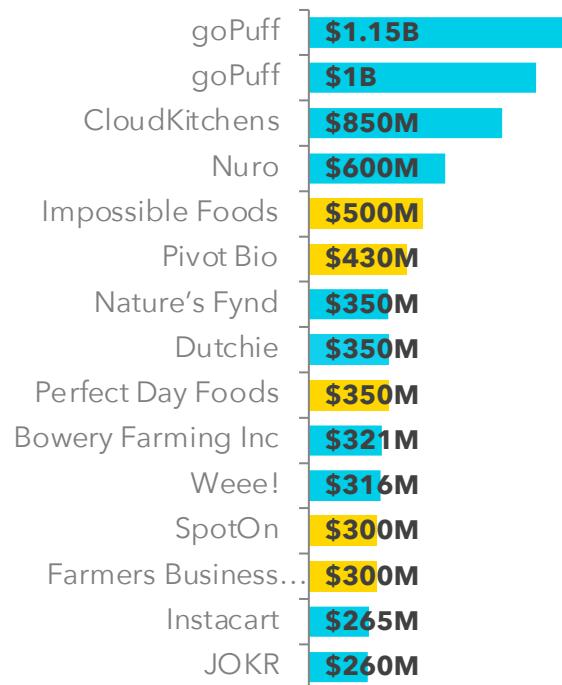
## What are your expectations for 2022?

**HC:** Latin America has the opportunity to further strengthen its agrifoodtech ecosystem this year, with new successes for established startups - but even more so with many seed companies emerging which are rapidly being backed by regional VCs in partnership with global leaders.

**BM:** In terms of trends, we see that consumers are becoming more aware of sustainability - which is evident in the purchase decisions they make - and that our society is changing its mindset because of this. This is going to foster investments in solutions focused on traceability, water management, and carbon neutrality. We also predict that we are going to have a second wave of ag fintech - including not only lending and risk management platforms, but also blockchain-based solutions.

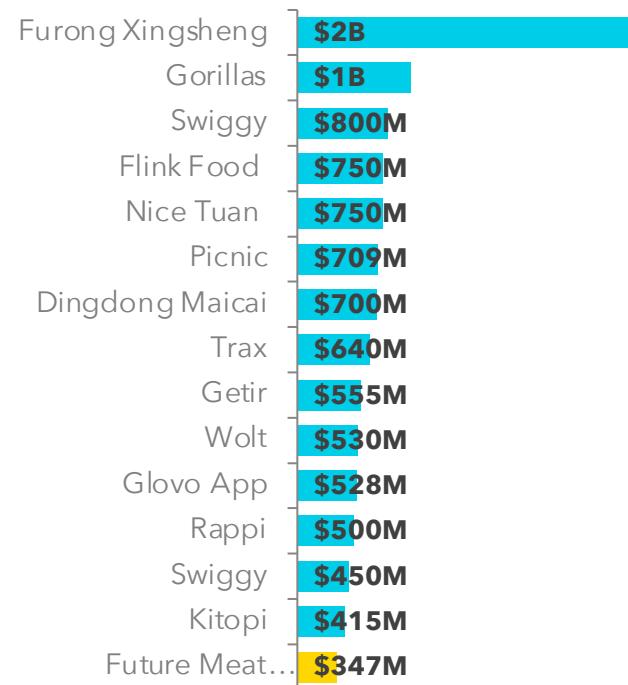
# Top US Deals

The US raised more agrifoodtech investment capital than anywhere else in the world in 2021; but its top 15 deals raised less than the overseas top 15. Many more upstream ventures in the US raised large growth- and late-stage rounds than in other countries, signaling the market's relative maturity.

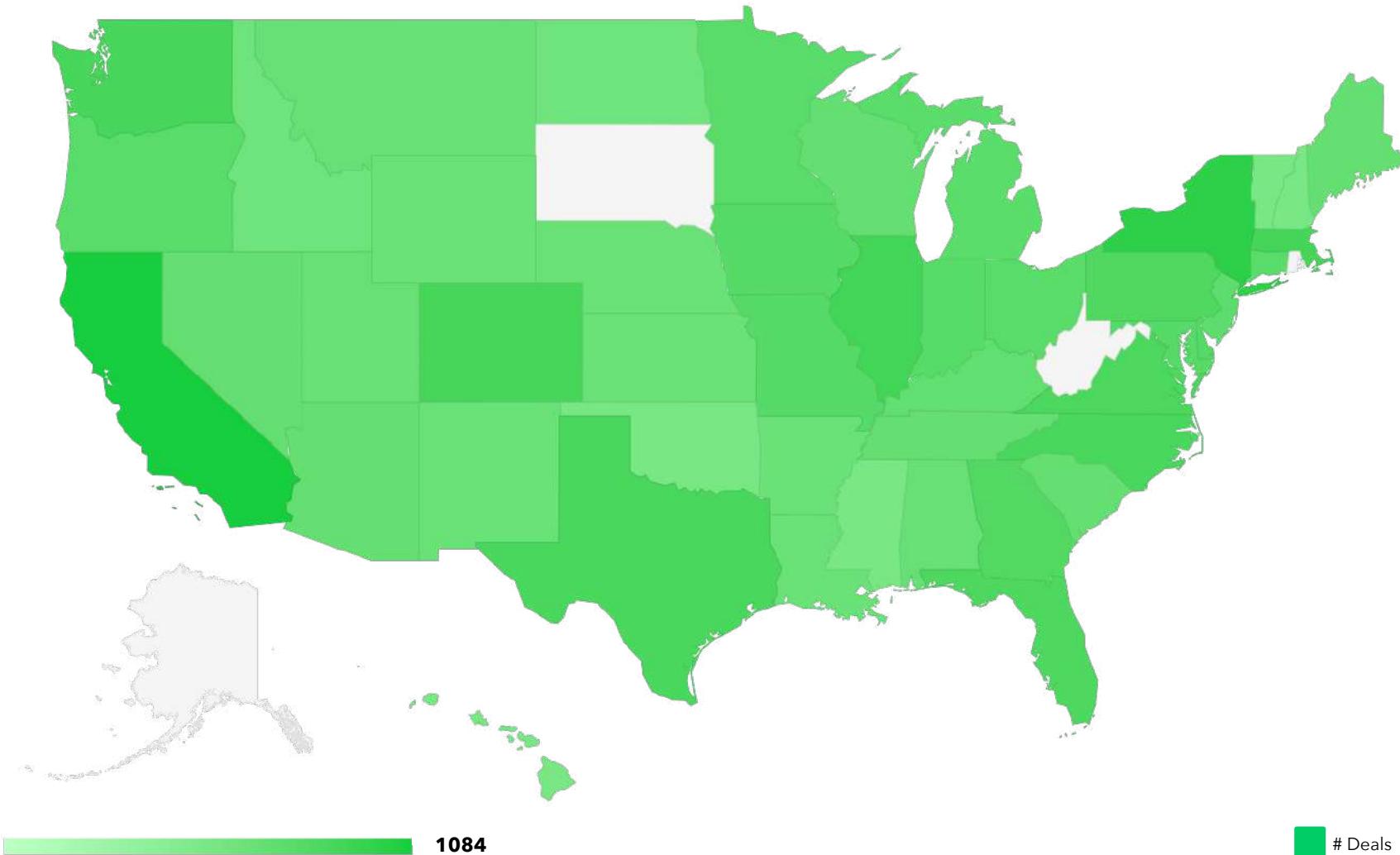


# Top Non-US Deals

The top 15 deals outside the US account for \$10.7bn in capital, compared to \$7.69bn in the US. eGrocery dominates the list; startups from other categories either haven't matured enough, or haven't convinced investors.

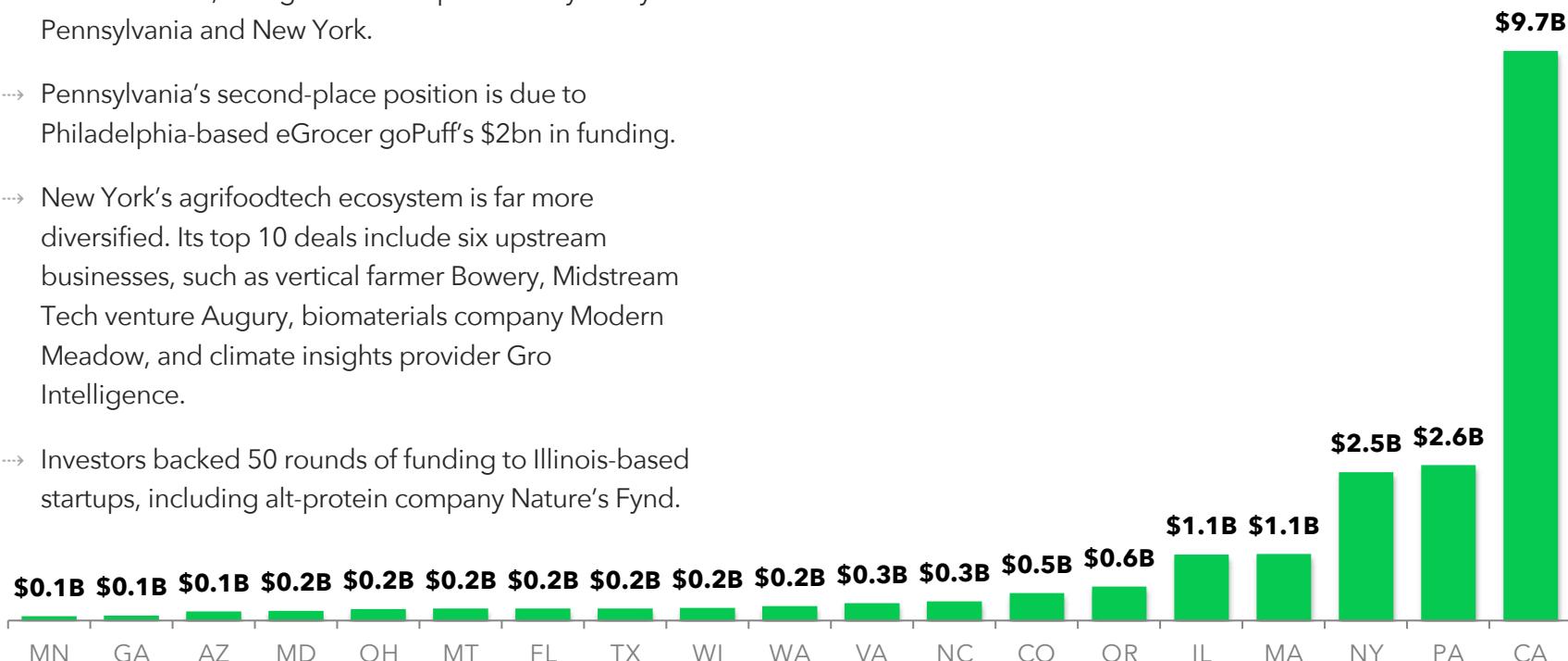


# US Investment by State | 2021



# US Investment: Volume by State

- California's continued dominance on the global agrifoodtech investment scene is tied to both its agricultural and venture capital roots.
- Boston's thriving tech startup scene – particularly in bioengineering, robotics, and AI – buoys Massachusetts, though it was out-paced this year by Pennsylvania and New York.
- Pennsylvania's second-place position is due to Philadelphia-based eGrocer goPuff's \$2bn in funding.
- New York's agrifoodtech ecosystem is far more diversified. Its top 10 deals include six upstream businesses, such as vertical farmer Bowery, Midstream Tech venture Augury, biomaterials company Modern Meadow, and climate insights provider Gro Intelligence.
- Investors backed 50 rounds of funding to Illinois-based startups, including alt-protein company Nature's Fynd.



# Investor Activity

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Image Courtesy of Hyphen

# Most Active Accelerator Funds

RANK	INVESTOR	LOCATION	# INVESTMENTS
1	SOSV	Princeton, NJ	63*
2	Y Combinator	Mountain View, CA	48*
3	TechStars	Global	41*
4	Big Idea Ventures	New York, US	30
5	GROW	Singapore	20**
6	The Yield Lab Plug & Play Ventures	Global	12
7	500 Startups Rockstart Agrifood SVG Partners/THRIVE	San Francisco, CA Amsterdam, The Netherlands Los Gatos, CA	10
8	GLOCAL Alchemist Accelerator	Rosario, Argentina San Francisco, CA	6

\*includes investments made by multiple accelerators and/or follow-on funds

\*\*AgFunder backs the GROW Impact Accelerator via its GROW Impact Fund

# Most Active Venture Capital Fund Managers\*

RANK	INVESTOR	LOCATION	# INVESTMENTS
1	S2G Ventures	Chicago, IL	39
2	Tiger Global Management	New York, NY	30
3	AgFunder Global Founders Capital	San Francisco, CA Berlin, Germany	22
4	Omnivore	Mumbai, India	18
5	Alexandria Venture Investments Temasek	Durham, NC Singapore	16
6	Gaingels 10X Capital	Burlington, Vermont New York, NY	15
7	CPT Capital GGV Capital Sand Hill Angels FJ Labs DST Global	London, UK Menlo Park, CA Mountain View, CA New York, NY London, UK	14
8	Astanor Ventures SoftBank Vision Fund	London, UK Tokyo, Japan	13
9	Continental Grain Innova Memphis	New York, NY Memphis, TN	12

\*by number of companies invested in, including follow-ons

# Exits

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Image Courtesy of Innate Biology

# AgriFoodTech M&A Insights

In 2021, the agrifoodtech scene saw plenty of M&A activity, in spite of continuing Covid-19 tailwinds and general economic uncertainty.

The year's largest agtech acquisition was US irrigation equipment manufacturer Valmont's \$300m purchase of Israeli crop analytics startup Prospera, announced in May. It marked the latest in a string of M&A transactions completed Valmont in 2020. Other major transactions with known values included John Deere's \$250m acquisition of AgFunder-backed farm equipment 'upfitter' Bear Flag Robotics; and Scott's Miracle-Gro's \$215m buyout of indoor ag lighting provider Luxx.

Two companies pursuing 'roll-up' strategies in recent years continued in 2021: Telus Agriculture, the agtech unit of Canadian communications giant Telus, followed up on its 2020 M&A spree by forming a joint venture with Rabobank to acquire US-based farm management software platform Conservis in July. Another roll-up specialist, Israel's CropX, bought Dutch counterpart Dacom in August – a transaction which significantly boosted its European presence.

In Novel Farming Systems, US-based vertical farm operator Kalera acquired Vindara – which it says is the only seed company dedicated to controlled environment agriculture – in February. In August, it paid \$153m for German counterpart

&ever; in doing so, it expanded its international footprint – particularly in Asia – and enhanced its tech capabilities.

On the foodtech side, among the most significant M&A deals was JBS's acquisition of Spanish cultivated meat startup BioTech Foods. The Brazilian meatpacking giant made the purchase as part of a wider \$100m investment into cellular agriculture and represented the first publicly-disclosed acquisition of a cell-cultured protein startup by a traditional meat processor. Earlier in the year, JBS shelled out \$409m to acquire Netherlands plant-based brand Vivera; both deals are examples of how conventional protein providers are accelerating investment in alt-protein to try secure market share and meet environmental obligations. We expect to see more legacy meat companies buying alt-protein in 2022.

These tables were turned in December when The Urgent Company – an affiliate of precision fermented dairy startup Perfect Day – acquired ice cream brand Coolhaus. This appears to be the first time that an alt-protein company has taken over a conventional protein counterpart.

Please note that financial details of M&As are rarely publicly disclosed. You can assume that is the case for any missing below. In our lists of 2021 agrifoodtech exits and M&A, we have focused on deals involving VC-backed companies.

# Select AgriFoodTech M&A Deals | 2021

Target	Target country	Acquirer	Acquirer Country	AgFunder Category	Est. Price
Prospera Technologies	Israel	Valmont Industries	US	Farm Management Software	\$300M
Bear Flag Robotics	US	John Deere	US	Farm Robotics	\$250M
Luxx Lighting	US	Scotts Miracle-Gro	US	Novel Farming Systems	\$215M
&ever	Germany	Kalera	US	Novel Farming Systems	\$153M
American Robotics	US	Ondas Networks	US	Farm Robotics	\$70.6M
Vandersat	The Netherlands	Planet	US	Farm Management Software	\$28M
Poultry Sense	UK	Merck Animal Health	US	Farm Management Software	
FarmlandFinder	US	EasyKnock	US	Miscellaneous (Real Estate)	
Soil Metrics	US	Indigo	US	Miscellaneous (Carbon Markets)	
Conservis	US	Telus Agriculture Rabobank	Canada The Netherlands	Farm Management Software	
Root AI	US	AppHarvest	US	Farm Robotics	
FarmLogs	US	Bushel	US	Farm Management Software	
GrainBridge	US	Bushel	US	Farm Management Software	
Artemis	US	iUNU	US	Farm Management Software	
Altrac	US	Semios	Canada	Farm Management Software	
BrightFarms	US	Cox Enterprises	US	Novel Farming Systems	

# Select AgriFoodTech M&A Deals | 2021 (cont.)

Target	Target country	Acquirer	Acquirer Country	AgFunder Category
Dacom	The Netherlands	CropX	Israel	Farm Management Software
AcreValue	US	Ag-Analytics	US	Miscellaneous (Real Estate)
Freshmart	Peru	Jüsto	Mexico	eGrocery
Midnight Robotics	Israel	FieldIn	Israel	Farm Robotics
Gaia Foods	Singapore	Shiok Meats	Singapore	Innovative Foods
ImpactVision	US	Apeel Sciences	US	Midstream Technologies
BoosterAgro	Argentina	AgroSmart	Brazil	Farm Management Software
Protifarm	The Netherlands	Ynsect	France	Novel Farming Systems
Farm Market iD	US	DTN	US	Farm Management Software
FarmGuide	India	DeHaat	India	Farm Management Software
Dagan	US	FluroSat (now Regrow)	US	Farm Management Software
BioTech Foods	Spain	JBS	Brazil	Innovative Foods
PastureMap	US	Soil Value Exchange (now Grassroots Carbon)	US	Farm Management Software
xFarm	Italy	Farm Technologies	Italy	Farm Management Software
Vindara	US	Kalera	US	Novel Farming Systems

# A Decade of Agtech M&A

The graphic on this page, courtesy of Verdant Partners, illustrates several of the most active agtech acquirers over the past 10 years.

As indicated, buying activity really ramped in 2021, with several companies making the lion's share of their acquisitions last year.

A glance at the graphic highlights how established ag companies are turning to tech M&A in order to diversify their offerings and stay on the cutting edge of the industry.

Valmont, for example - a veteran in irrigation equipment - has acquired several farm data platforms in recent years, including its \$300m purchase of Israel's Prospera in 2021. Meanwhile, traditional tractor maker John Deere has acquired startups working on vehicle electrification and automation - including AgFunder-backed Bear Flag Robotics last year in a \$250m deal.

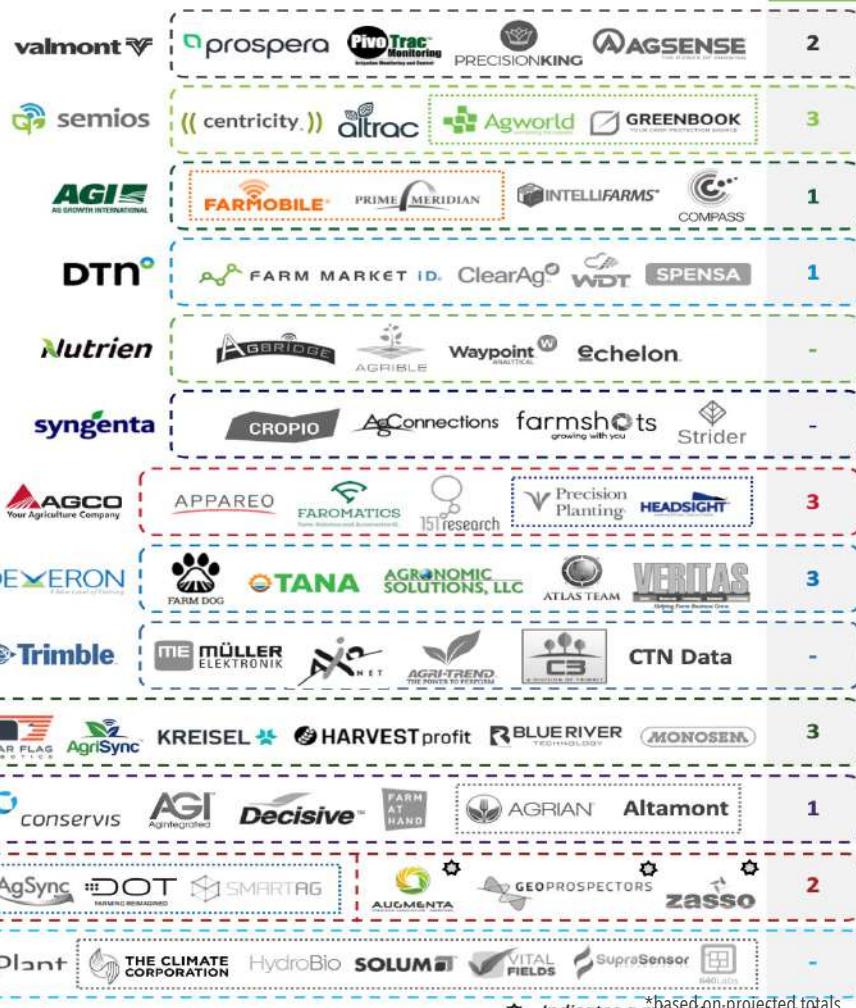
This bleeding of the edges looks set to accelerate in the coming years, as more non-ag players buy into the industry; Canada's Telus, as shown here, has already started.

## Other Active Technology Buyers



Acquired company logos presented in color inside the dashed boxes represent deals announced in 2021, whereas those completed 2020 or prior are grayscale logos.

2021  
Deals



\*based on projected totals

\* Indicates a minority investment

# AgriFoodTech IPO & SPAC Deals 2021

2021 has seen more agrifoodtech companies go public than in any previous year.

That's in large part down to the arrival on the scene of special purpose acquisition companies (SPACs) - publicly listed shell corporations that raise funds to acquire existing private businesses, taking them public via 'reverse merger.'

High-profile SPAC deals last year involved the likes of biotech platforms Benson Hill, Ginkgo Bioworks, and Greenlight Biosciences (the latter being an AgFunder portfolio company); as well as indoor farming operators AppHarvest and Local Bounti.

It was also a bumper year for companies opting to go the conventional IPO route; 2021's biggest agrifoodtech IPO was for food delivery app Deliveroo, which raised \$1.98 billion at the start of the year. Alt-protein also got another big-ticket IPO, with Swedish alt-milk maker Oatly raising \$1.4 billion in May.

Two of China's biggest agrifoodtech ventures - eGrocers Dingdong Maicai and Missfresh - listed on US markets last year; geopolitical rancor means there may be little likelihood of seeing similar overseas IPOs involving China's growing

number of agrifoodtech giants in the years ahead.

While the majority of IPOs involved foodtech companies; in agtech, Canadian farm management platform Farmers Edge raised \$91.7 million in its March float,

One company on our list (see next page), Bistroo, conducted an initial coin offering (ICO) in May, raising proceeds equivalent to just over \$9 million at the time.

ICOs involve the sale of a blockchain-based platform's native cryptocurrency to investors. However, they are at the mercy of cryptocurrency price instability and are not externally regulated.

Bistroo, a Dutch Restaurant Marketplace, aims to reward users with its cryptocurrency in return for community activity such as leaving reviews online or recommending new restaurants for onboarding.

# Select AgriFoodTech Public Offerings 2021

Company	Headquarters	AgFunder Category	Date	Type	Amount Raised (USD)
Deliveroo	UK	Restaurant Marketplace	Mar	IPO	\$1.98B
Ginkgo Bioworks	US	Midstream Technologies	Sep	SPAC	\$1.63B
Oatly	Sweden	Innovative Foods	May	IPO	\$1.4B
Toast	US	In-Store Restaurant & Retail Tech	Sep	IPO	\$870M
Zymergen	US	Midstream Technologies	Apr	IPO	\$465M
Olo	US	In-Store Restaurant & Retail Tech	Mar	IPO	\$450M
Benson Hill	US	Ag Biotech	May	SPAC	\$403M
Local Bounti	US	Novel Farming Systems	Jun	SPAC	\$275M
Missfresh	China	eGrocery	Jun	IPO	\$273M
Boxed	US	eGrocery	Jun	SPAC	\$259M
Greenlight Biosciences	US	Ag Biotech	Aug	SPAC	\$173M
AppHarvest	US	Novel Farming Systems	Feb	SPAC	\$100M
Dingdong Maicai	China	eGrocery	Jun	IPO	\$95.7M
Farmers Edge	Canada	Farm Management Software	Mar	IPO	\$91.7M
Biotalys	Belgium	Ag Biotech	Jul	IPO	\$54.6M
Agrify	US	Novel Farming Systems	Jan	IPO	\$54M
DayDayCook	Hong Kong	Home & Cooking Tech	Aug	SPAC	\$40M
NRGene	Israel	Ag Biotech	Jan	IPO	\$25.6M

## Sources & Methodology

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# What is AgriFoodTech?

Agrifoodtech is the small but growing segment of the startup and venture capital universe that's aiming to improve or disrupt the global food and agriculture industry.

As with all industries, technology plays a key role in the operation of the agrifood sector - a \$7.8 trillion industry, responsible for feeding the planet and employing well over 40% of the global population. The pace of innovation has not kept up with other industries and today agriculture remains the least digitalized of all major industries, according to McKinsey.

The industrial agrifood sector is also less efficient than other industries, with an increasing number of demands and constraints being placed on it. These pressures include a growing global population; climate change and global warming; environmental degradation; changing consumer demands; limited natural resources; food waste; consumer health issues; and chronic disease.

The need for agrifoodtech innovation is greater than ever. This creates many opportunities for entrepreneurs and technologists to disrupt the industry and create new efficiencies at various points in the value chain.

Broadly speaking, agrifoodtech startups are aiming to solve the following challenges: food waste, CO2 emissions, chemical residues and run-off, drought, labor shortages, health and sugar consumption, opaque supply chains, distribution inefficiencies,

food safety and traceability, farm efficiency and profitability, and unsustainable meat production.

There are many ways to categorize agrifoodtech startups highlighting the complexity of the industry. See page 15 for more information on our categorization system, which we developed in consultation with venture capitalists, entrepreneurs, and other industry experts.



# 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 over 29,939 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 the industry. AgFunder contributes data from its own collection methods, including private communications with investors and companies. We also collect data from partners across the globe (see page 61 below) to ensure we have the most comprehensive, accurate, and curated dataset and knowledge base of agrifoodtech companies and investments.

The raw data are painstakingly curated by the AgFunder team 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. To provide numbers that can be fairly compared to the previous year, estimates for total deal volumes and amounts for this year are adjusted using a model of

how they will appear 12 months in the future. The adjustments (roughly +17% for overall dollar volumes and +45% for deal counts, with more granular adjustments by stage where appropriate) are modelled based on trends in historical data dating back to 2017.

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 3,241 financings in this report's curated dataset, 874 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.

# Sources & Methodology

## Categorization

AgFunder's categorization system is designed to capture broad themes across the complex agrifoodtech value chain (see page 15 for a list of categories). 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.

In 2019, we added a new category, Cloud Retail Infrastructure, to relieve the Midstream Tech category of 'later-stream' deals we felt no longer fit. Cloud Retail Infrastructure includes the growing number of technologies enabling companies to provide customers with on-demand, at-home dining, such as ghost kitchens and last-mile delivery services including delivery robots.

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.

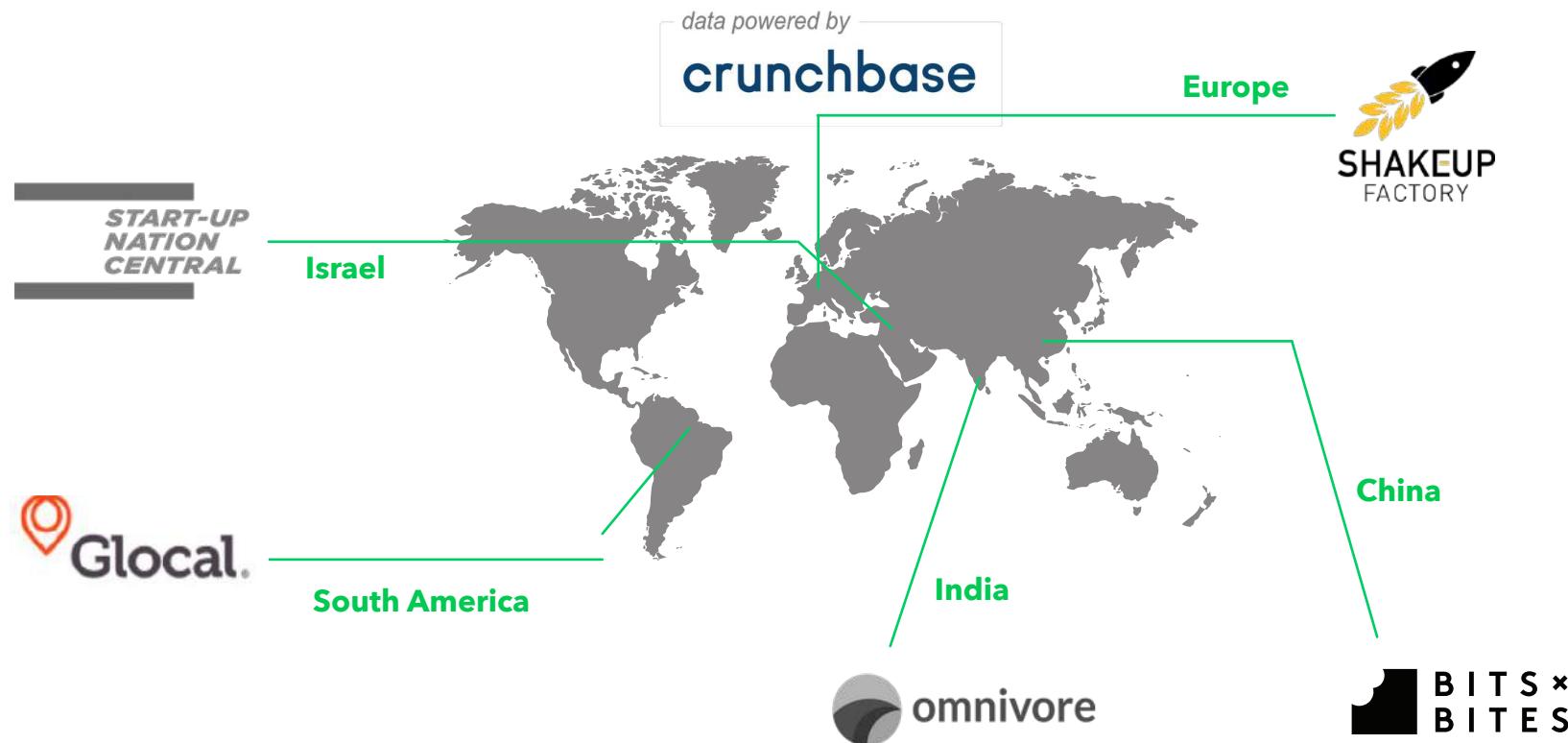
## Special Acknowledgement

Special thanks to Tim Li, Ellen Ehrsam, and the rest of the Crunchbase team for their support and assistance.

*data powered by*  
**crunchbase**

# Our International Data Partners

In addition to our partnership with **Crunchbase**, we've partnered with several groups from around the world to help us collect more international data at the local level to ensure we can present the most comprehensive data set in the industry. Our partners for the 2019 report include Start-up Nation Central in Israel, SP Ventures in Brazil, Glocal in Argentina, Bits x Bites in China, ShakeUp Factory in Europe, and Omnivore in India. Special thanks to Kevin Camphius for his invaluable curation help.



Are we missing your data?  
Don't forget to send it to us!

[Data@AgFunder.com](mailto>Data@AgFunder.com) or  
add direct onto  
[Crunchbase.com](https://www.crunchbase.com)

