



AgFunder Farm Tech Investment Report





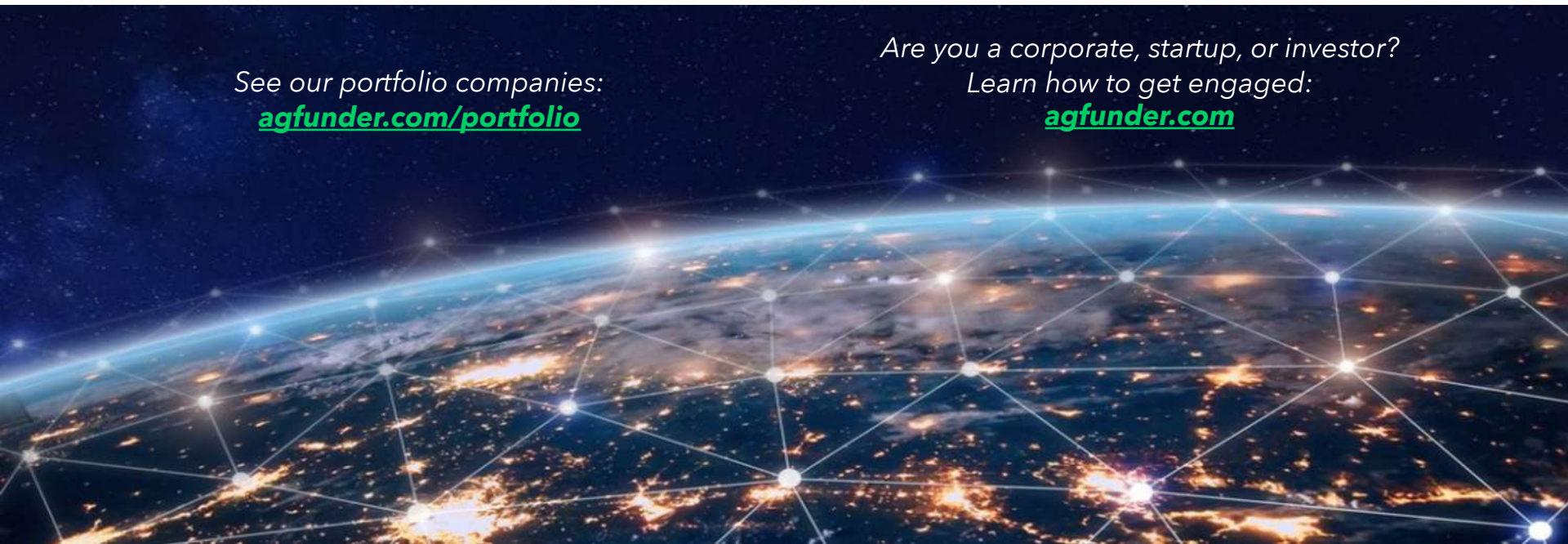
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We invest in bold, transformational
foodtech & agtech founders

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Upstream Ag Insights supports startup agribusinesses to multinational agriculture companies on the strategy and marketing of new products and technologies, by Shane Thomas.

In addition to consulting, Upstream Ag Insights is a weekly newsletter highlighting and analyzing essential agribusiness news and events, read by agribusiness leaders from around the globe.

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Global Farm Tech in 2021

If the one word that summarized venture capital investing in 2020 was “pandemic,” 2021’s word might well be “SPAC.” Before this year, less than a handful of agrifoodtech companies had used a special purpose acquisition company to go public. This year so far there have been six (see p45). All of them are related to Farm Tech—the domain of agrifoodtech that services growers with new crop inputs, machinery, devices, software, analytics and logistics.

The SPAC surge is a milestone in a maturing agrifoodtech industry. Investors are finally seeing a pathway to exiting their early investments in what has otherwise been a slow trickle of IPOs and acquisitions; the last significant exits were in 2017 when Blue River Tech and Granular were each acquired for around \$300m. And SPACs haven’t been the only exit route this year; traditional IPOs and acquisitions have also sped up, producing some valuations close to \$1bn (see p44).

What is notable about many of the Farm companies hitting the stock market via SPACs is that they’re effectively listing on the promise of their growth and impact, rather than their current financials; these deep technologies are still “early” and experimental in many ways.

Other signals of Farm Tech sector maturity this year include

the fact that in 2020 investment volumes experienced the largest projected jump since 2018, accelerating to \$7.9 billion – a 41% increase from 2019.

The number of companies that we project will have closed deals in 2020 tops 2019 by nearly 190, with particular activity at the early stages. Even amid an unprecedented global pandemic, a growing number of investors showed sufficient comfort with the sector to cut checks for new technologies.

Many of those early deals of 2020 will show up in 2021 and 2022’s growth-stage data. The investment cycle continues.

There is still little geographic diversity in Farm Tech, with the US dominating investment activity by a long-shot. That said, Europe, which otherwise experienced a fairly flat year in 2020 across broader agrifoodtech investing, is on the map in Farm Tech as a growing Novel Farming Systems hub.

One trend that could ignite more geographic diversity: low-carbon technologies. Farm Tech should play a significant role as pressure to capture and accurately measure soil carbon accelerates; whether that’s to feed emitting companies’ demand for carbon offsets or to put more money in operators’ pockets via government hand-outs and incentives.

We hope you enjoy this Farm Tech snapshot, for which this year we partnered with Upstream Ag Insights, the deeply thoughtful newsletter from Shane Thomas.

Louisa Burwood-Taylor, Shane Thomas, Jessica Pothering and the AgFunder team.

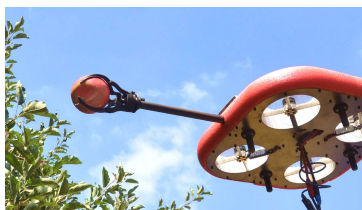
Cover & Section Images

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



Ganaz is lowering costs for employers in ag and food manufacturing by automating processes like hiring, training, and payment of wages

[Learn more](#)



Tevel is developing flying, autonomous fruit pickers, starting with the apple industry, to solve major labor challenges. Yes, that's flying robots!

[Learn more](#)



Verdant Robotics' technology transforms grower profits by digitally mapping the entire farm across time and space, automatically tracking and treating every part of every plant – at massive scale.

[Learn more](#)



FYTO is developing novel, nutrient-dense, non-GMO crops with ultra high-yields and exceptional nutrient profiles using automated cultivation and harvesting systems.

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AppHarvest operates some of the world's largest high-tech indoor farms, designed to grow non-GMO, chemical pesticide-free produce, using up to 90% less water than outdoor farming.

[Learn more](#) (*An AgFunder portfolio company through acquisition of RootAI*)



Apeel Sciences develops low-cost, natural technologies to help to eliminate food spoilage, reduce water and energy use, and preserve natural ecosystems.

[Learn more](#) (*An AgFunder portfolio company through acquisition of ImpactVision.*)



2020 Overview

Farm Tech Funding Breakdown 2020

\$7.9bn

PROJECTED
INVESTMENT

+41%

PROJECTED YOY
INVESTMENT GROWTH

1154

PROJECTED DEALS
CLOSED

20%

PROJECTED YOY DEAL
GROWTH

1167

UNIQUE INVESTORS

\$535m

BIGGEST DEAL

Key Insights*

Investment in Farm Tech start-ups has grown consistently since 2013, and 2020 experienced the largest projected jump since 2018, accelerating to \$7.9 billion – a 41% increase from 2019.

For context, agrifoodtech overall gained 35% while the greater VC space jumped only 4%, according to *Crunchbase*.

Segments within Farm Tech, including Ag Biotechnology and Novel Farming System, have accelerated similarly or faster than the Farm Tech sector overall.

The two categories had over \$1.5 billion invested in 2020; four categories had more than 100 deals each. Farm Management Software, Sensing and IoT remained the largest sector for investment activity (deal count) in 2020, but it lost market share to Ag Biotech, which saw a 58% year-over-year increase in deal activity.

In terms of total dollars invested in 2020, investors remained bullish on Ag Biotech and Novel Farming Systems. Farm Management Software dropped off in favor of Agribusiness Marketplaces in terms of total dollars invested, however.

Key category moves:

- Capital invested in Ag Biotech increased 30% from 2019 levels, with deal activity surging 58%.
- Farm Management Software and IoT had the highest deal count, indicating there are many investors looking at smaller IoT-focused organizations.
- This makes sense: when we consider the landscape and potential exit opportunities, large agribusiness players will continue looking to augment their current platform initiatives.
- The largest deal in 2020 involved Indigo Ag, which raised two rounds totalling \$535 million.
- Another unicorn in the marketplace sector, Farmers Business Network, had the second largest deal – a \$250 million Series F, with participation from the world largest asset manager, BlackRock.

*based on projected totals

Key Insights*

The industry's maturity is evident with the increase in growth-stage investments, both in terms of number of deals and dollars invested. A total of 13 deals in 2020 came in north of \$100 million, eclipsing the 2019 number of 11.

“FarmTech investment increased 41% YOY in 2020. Comparatively, agrifoodtech increased 35% and the greater VC space, only 4%.”

Another sign of the industry's maturity: Early-stage companies had more success in 2020 than 2019, in spite of investor reticence to cut new checks early in the pandemic. This signals that investors are growing familiar with Farm Tech and willing to take bets on promising new technologies.

Geographically, the US is undeniably the dominant market for Farm Tech—the state of California in particular, which claimed 35% of all Farm Tech investment worldwide. A number of large rounds outside of California, particularly in

the deep tech hub of Boston and agricultural strongholds like Missouri, show that it's possible to succeed as a Farm Tech company outside of Silicon Valley.

Outside of the US, Europe put itself on the map as a Novel Farming stronghold.

Quick Facts

- FarmTech investment increased 41% YOY in 2020.
- The US accounts for 83% of all Farm Tech investment. California had 35% of the total.
- Early-stage investment volume and deal count declined for the second straight year, while growth stage activity accelerated.
- The most active corporate VC in the space was Leaps by Bayer.
- Ag Marketplace companies had the two largest investment rounds of 2020: Indigo and FBN.

*based on projected totals

Predictions for 2021 and beyond

Technology supports the reduction of costs and inputs throughout the entire ag value chain. Agriculture producers continue to have a laser-like focus on costs and macro trends like:

- carbon sequestration to combat climate change;
- reduction of synthetic crop input products to support environmental sustainability;
- ‘fear of missing out’ by corporate companies, family offices and investment firms;
- and maturity in the space, where larger growth capital is necessary to keep agtech companies moving through their long maturity cycle

We’re likely to see continued Corporate VC investment, as these organizations focus on ensuring they are well positioned to support their core businesses and get exposure downstream via technology.

In 2020 and 2021, there has been an unprecedented amount of discussion about soil carbon within Farm Tech and farming circles, and there is no sign of that abating.

What to watch:

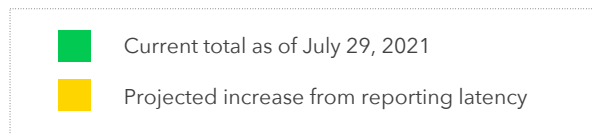
ESG endeavors. Intensifying consumer and regulatory pressure is forcing mainstream businesses to realign products and practices for long-term sustainability. Farm Tech companies are capitalizing on this trend by developing better crop technologies, growing systems, circular economy solutions, and on-farm and supply chain measurement and management tools.

Carbon markets. Verifying carbon practices and sequestration is getting increased attention and scrutiny. There is still considerable uncertainty in the accuracy and scalability of carbon sequestration measurement.

Exits in agrifoodtech. With increased use of special purpose acquisition companies, or SPACs, to go public, 2021 seems primed for numerous public exits, as well as exits via large corporates making strategic acquisitions.

*based on projected totals

Annual Financings | 2012-2020





Deals by Category

Farm Tech Category Definitions



Ag Biotechnology

On-farm inputs for crop & animal ag including genetics, microbiome, breeding, animal health.



Farm-to-Consumer eGrocery

Online platforms for farmers to market and deliver their produce direct to consumers



Agribusiness Marketplaces

Commodities trading platforms, online input procurement, equipment leasing.



Farm Robotics, Mechanization & Equipment

On-farm machinery, automation, drone manufacturers, grow equipment.



Bioenergy & Biomaterials

On-farm ag waste processing, biomaterials production, anaerobic digesters.



Midstream Technologies

Food safety & traceability tech, logistics & transport services used by farmers.



Farm Management Software, Sensing & IoT

Ag data capturing devices, decision support software, big data analytics.



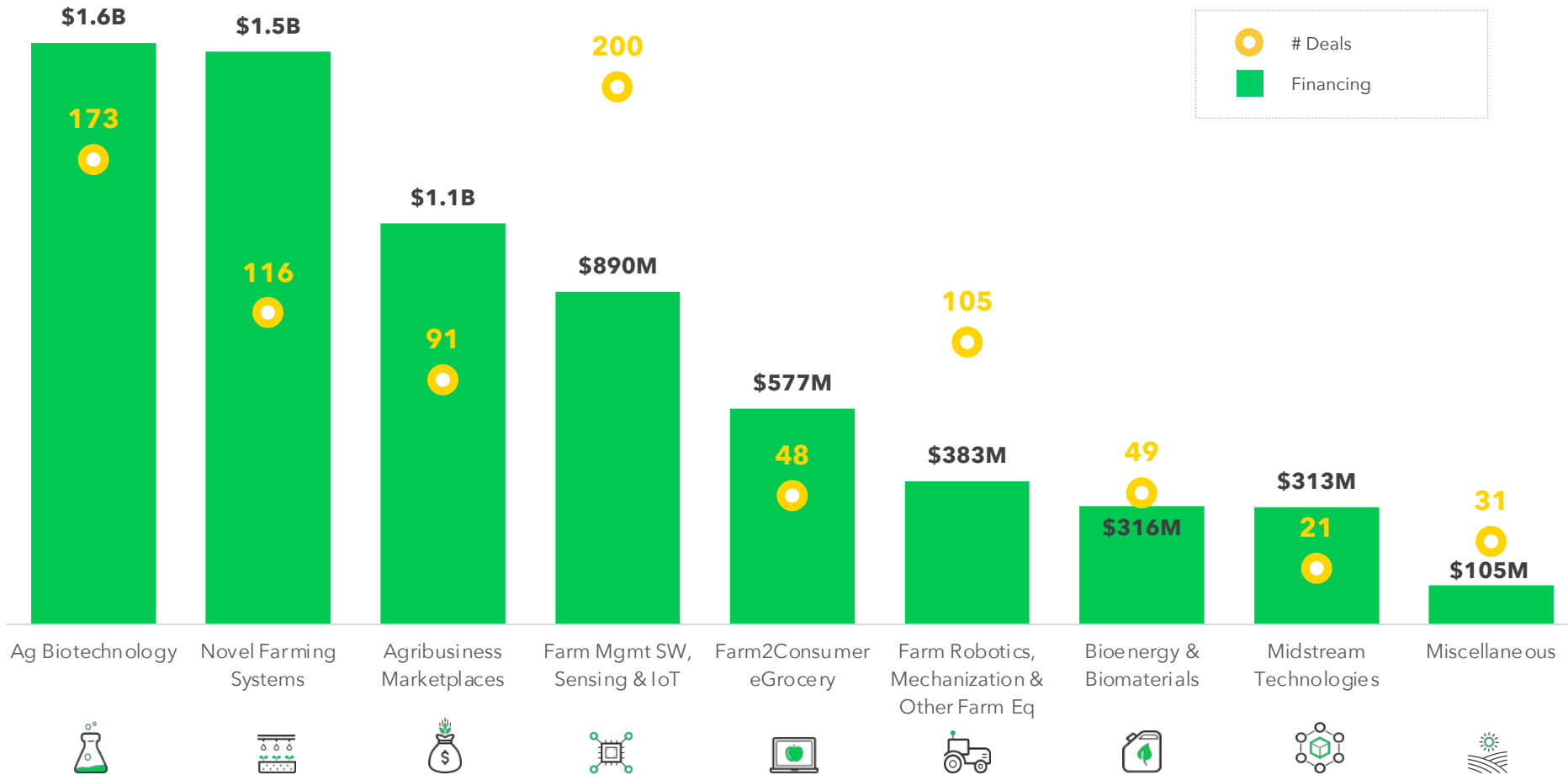
Novel Farming Systems

Indoor farms, aquaculture, insect, & algae production.

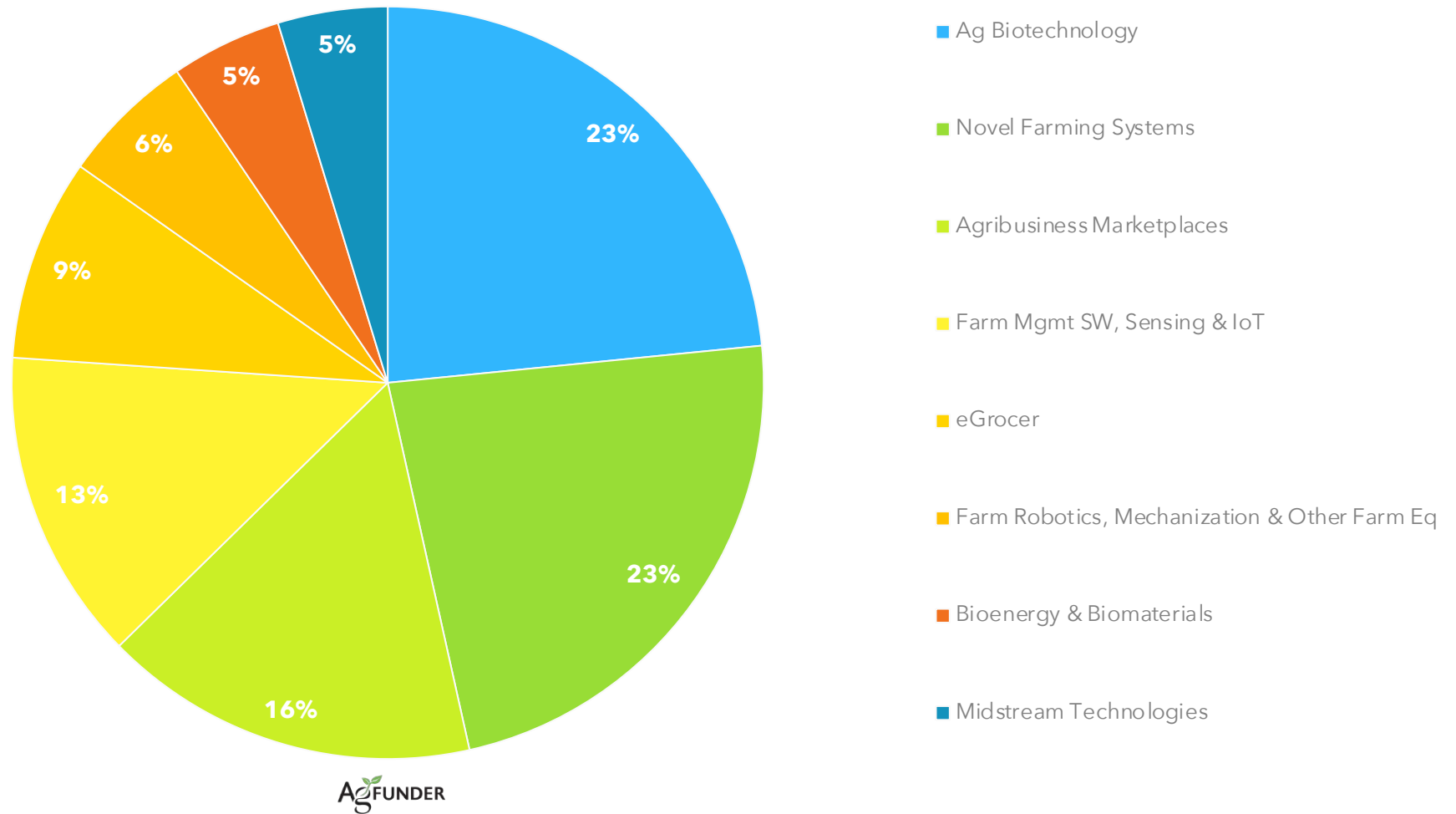


Miscellaneous e.g. fintech for farmers

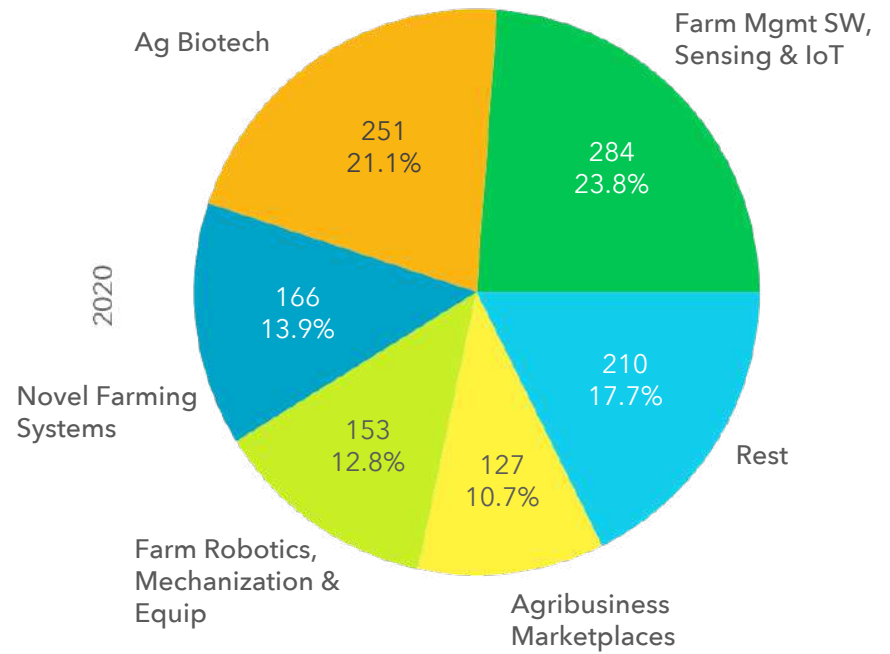
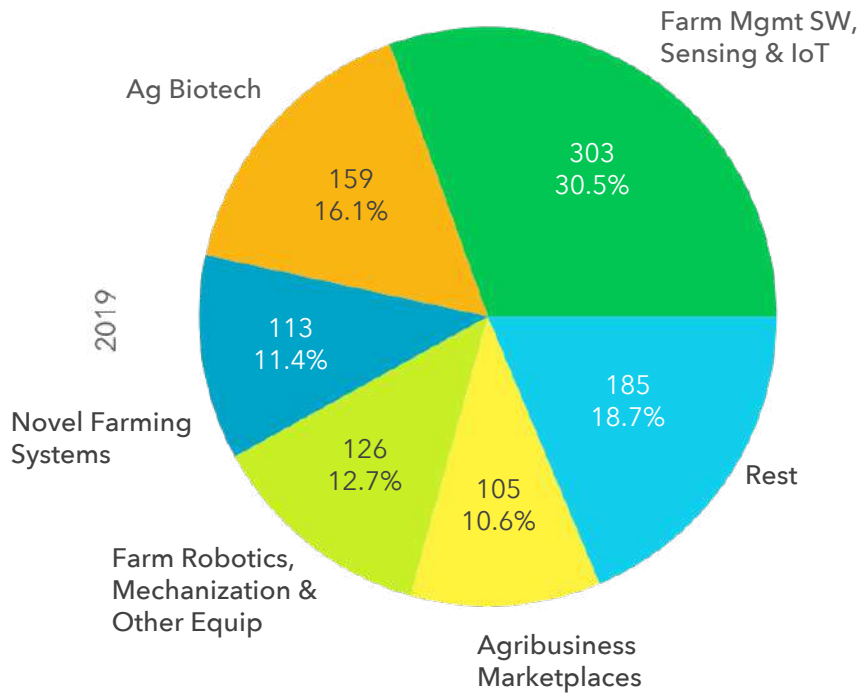
2020 Deal Volume and Activity by Category



2020 Farm Tech Investment Activity



Category Deal Activity 2019 vs 2020





Fund IV

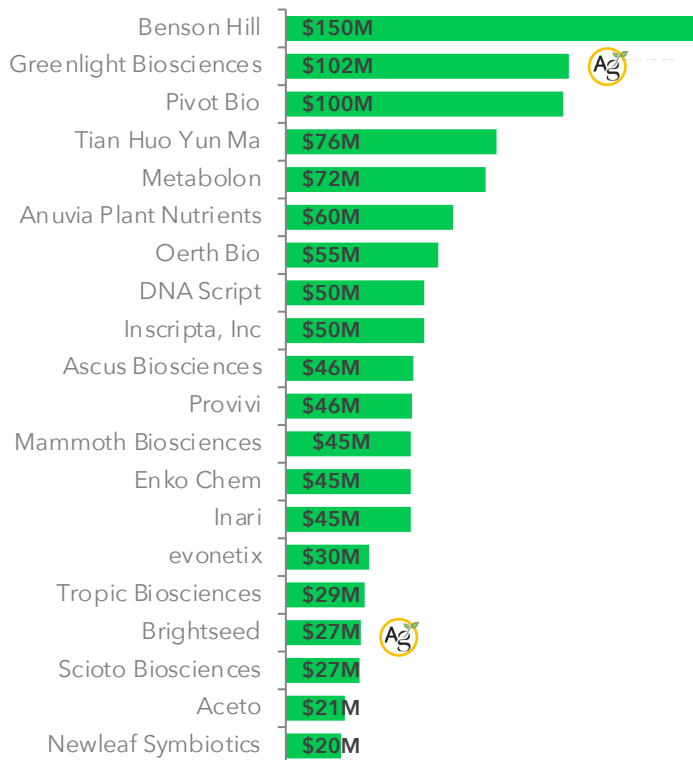
Invest with us in iconic, next generation and planet positive foodtech and agtech startups.

Get notified: <https://agfunder.com/early-access-fund-iv/>



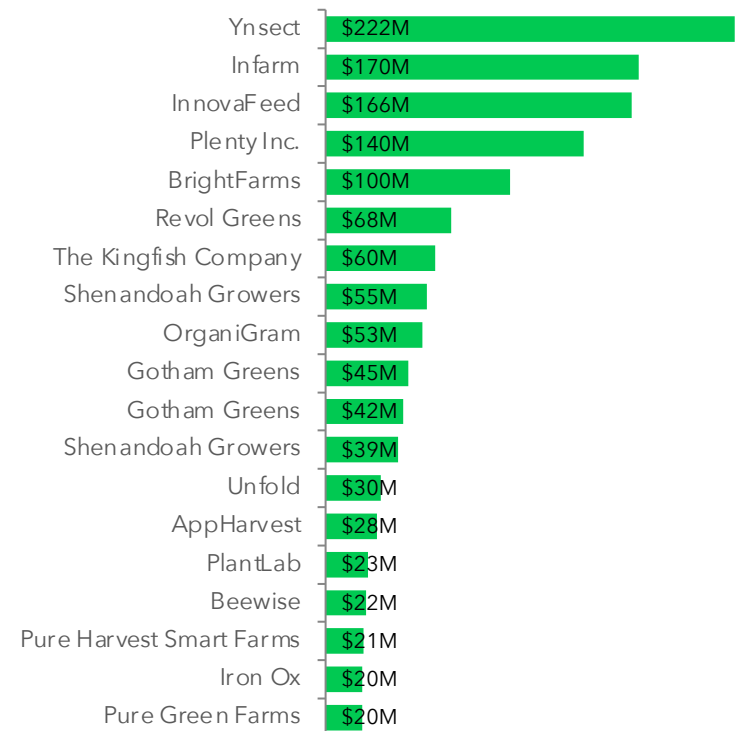
Top Ag Biotech Deals


Two core themes: genetic engineering and sustainable crop input products. These categories entail CRISPR, RNAi, microbial nitrogen fixation, enzymatic and pheromone-based crop protection, and more. These trends are being driven by a focus on sustainable production gains.



Top Novel Farming Systems Deals

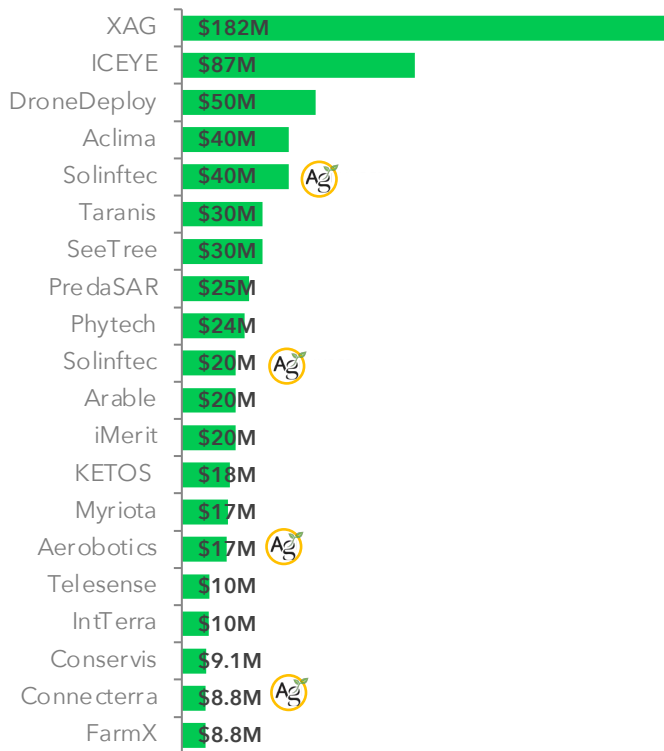
Indoor agriculture continues to attract massive amounts of capital. The demand for urban agriculture increased, partly due to Covid-19's supply chain disruptions. Also: high-quality urban supports a more sustainable food system. Five Novel Farming ventures raised \$100+ million rounds.



 AgFunder portfolio company

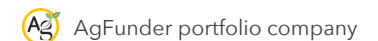
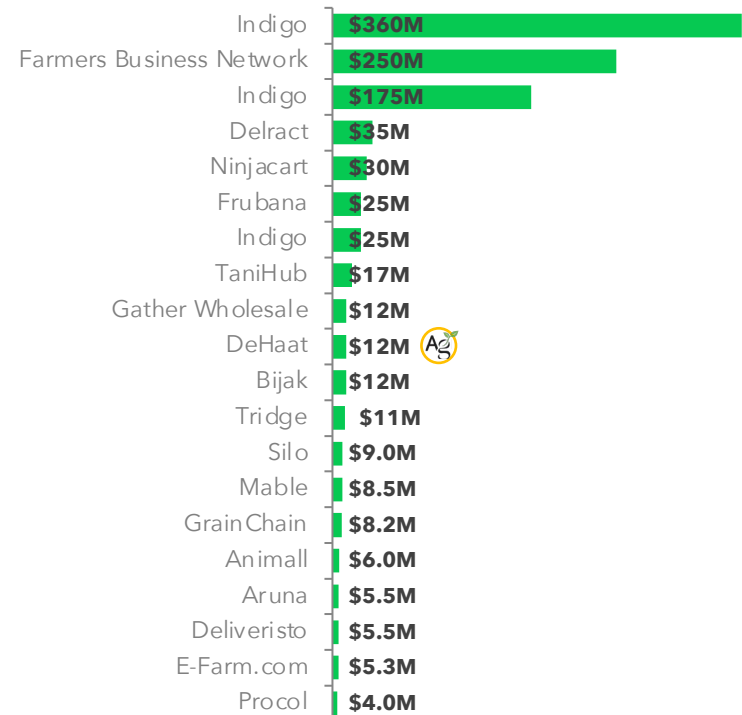
Top Farm Management SW, Sensing

The category stayed flat in terms of deal number and dollars invested. There is an abundance of platforms and software systems available on the market today and only so many will be able to scale. One area of growing interest: sensors and IoT systems focused on data acquisition.



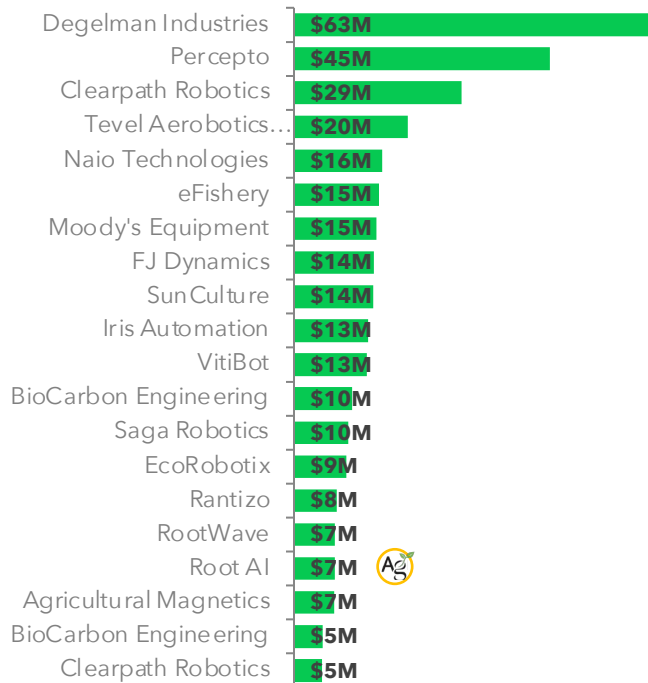
Top Agribusiness Marketplace Deals

Marketplace businesses are attractive to investors because of their scalability and winner-take-most dynamics. The two largest Farm Tech capital raises in 2020 were both in this space: Indigo and Farmers Business Network. We have not seen one take off in upstream agrifoodtech yet, however.



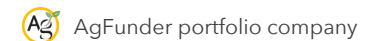
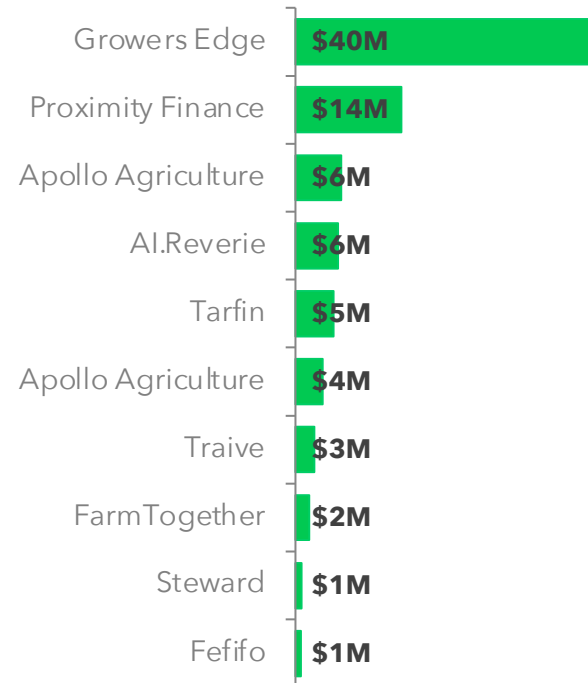
Top Farm Robotics & Mechanization

In 2020 and \$212 million invested in farm Robotics, Mechanization and Equipment, representing +15% growth over 2019. The median deal size went up by 22%. Autonomous robotic weeding company Naio Technologies had a big raise, as did drone company Percepto.



Miscellaneous Deal Category

Our Miscellaneous category includes a lot of financial technology, or fintech, which has been coming to ag and food in a big way, particularly enabling access to credit and rate transparency in the supply chain. This trend has especially taken off in developing economies and for smallholder farmers.



2021 Insights from indigo™

What are the biggest opportunities for Indigo Ag and your sector of the industry for 2021?

As companies increasingly make commitments to improve their environmental impact – and governments at all levels enact policies to encourage climate smart agriculture – the opportunity for agriculture to act as a climate solution will only become more apparent. These changing market dynamics will create new demand for sustainably sourced crops and increase the value of carbon offsets generated through agriculture. Indigo's offerings – specifically Grain Marketplace and Carbon by Indigo – are uniquely designed to meet these market needs.

Also, farming is becoming increasingly digitized. This was a trend before the pandemic, but the digital transformation that has occurred over the last year has only accelerated adoption with the agriculture space.

What has been the biggest contributor to your success since the founding of your organization?

Indigo has remained a mission-driven company focused on three core pillars: increasing grower profitability, improving the environmental sustainability of agriculture,

and meeting consumer preferences for healthy and sustainable food. This mission focus has resonated with prospective new hires and enabled Indigo to attract a strong talent force from across industries. Indigo's talent has enabled the company to continue to innovate to ensure our offerings are meeting the needs of all our stakeholders.

You raised a lot of capital in 2020. What can we expect to see from you in 2021 in terms of deploying that capital?

Indigo will continue its focus on maturing our offerings by investing in the science and technology behind them. We will release new farmer and buyer facing software to support digital business with an increasingly complete experience by harvest of 2021, led by the technology teams under the leadership of our new Chief Technology Officer, Maria Belousova.

Additionally, we will prioritize building our partner network with Ag retailers to accelerate adoption of natural solutions.

How will you win in a competitive marketplace with significant control by incumbents?

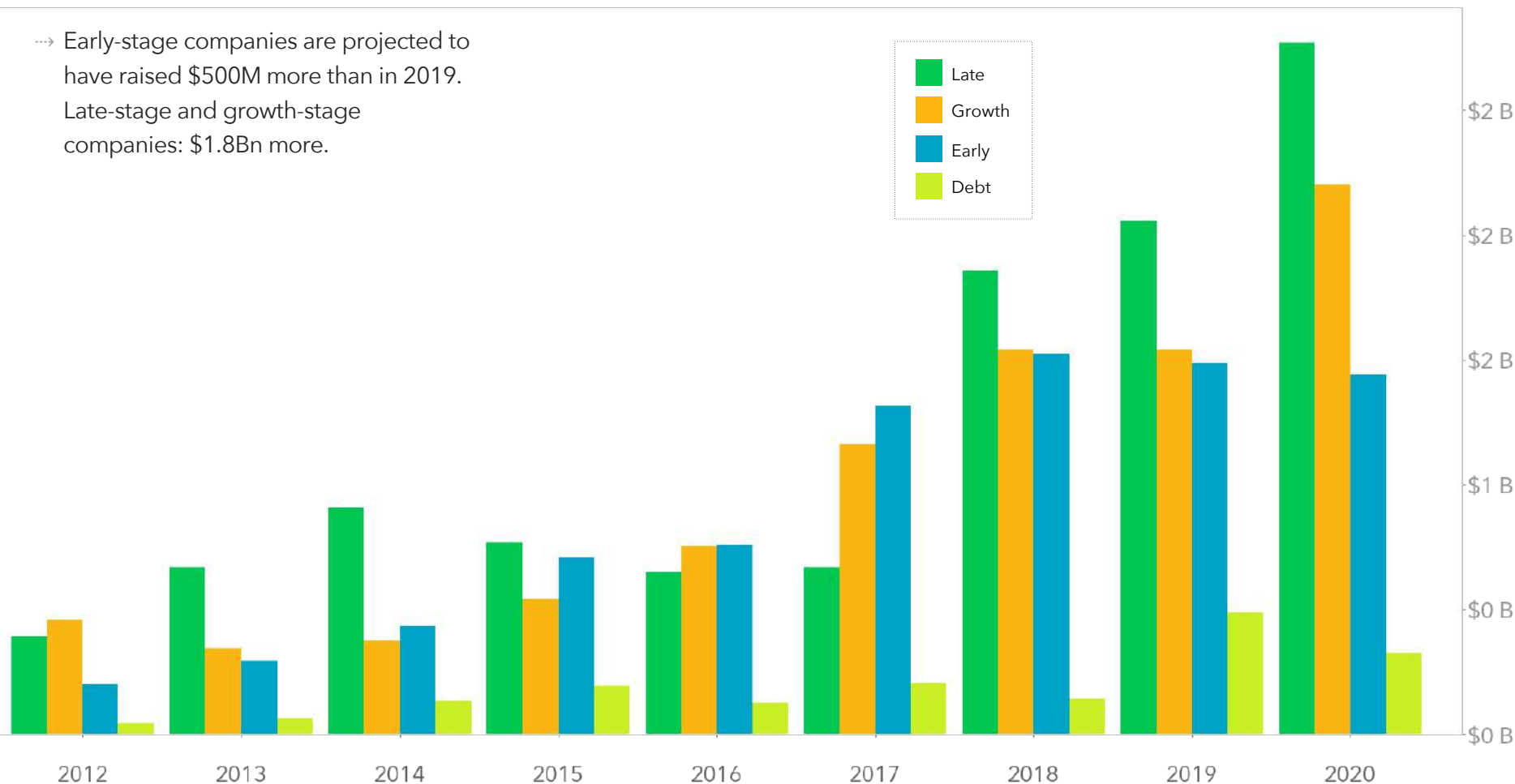
Indigo is focused on partnering with stakeholders across the agriculture system. By acting as an independent, neutral third-party technology platform, Indigo creates new value for all ag stakeholders, including incumbents.



Deals by Stage

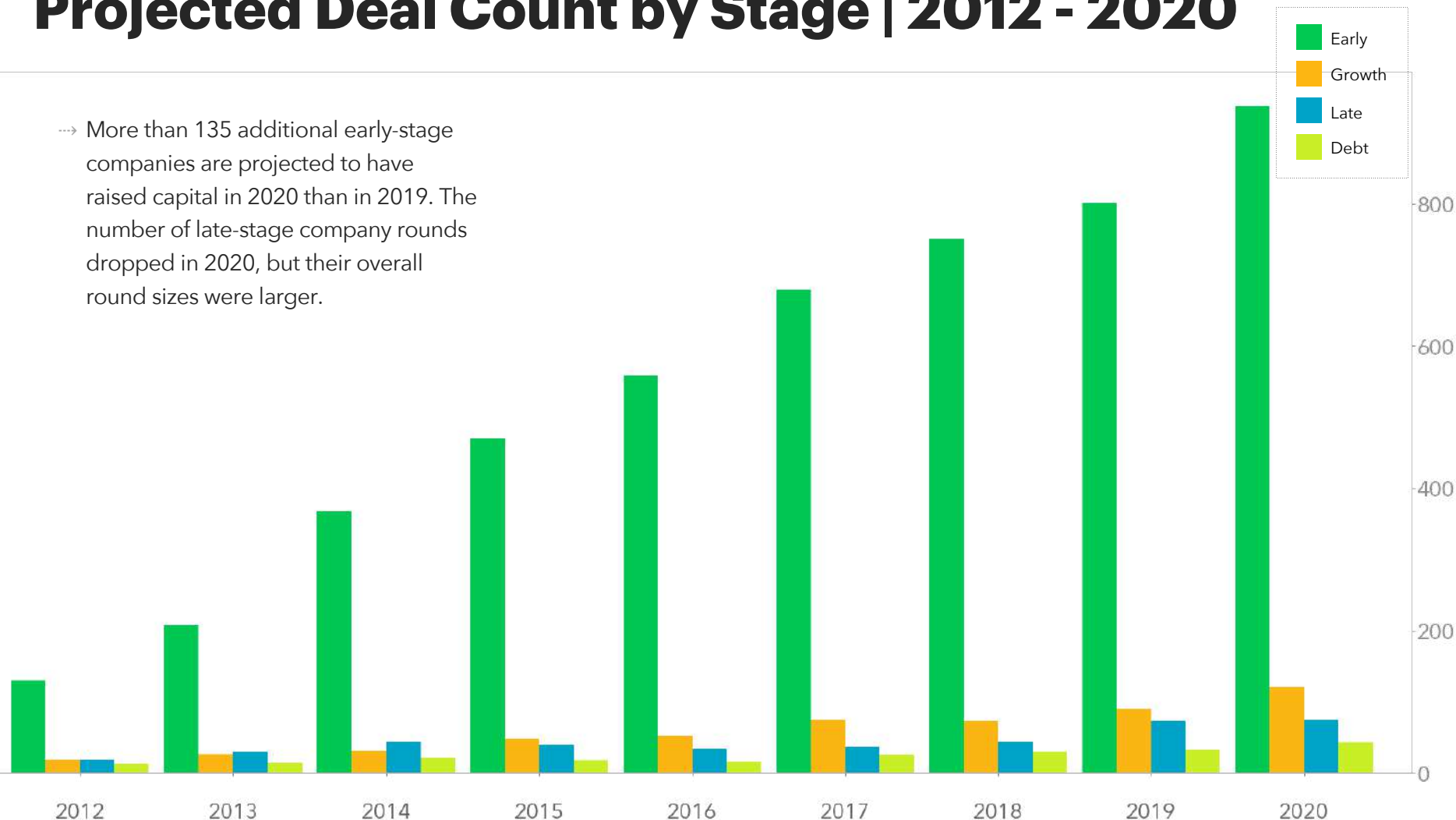
Projected Deal \$ Volume by Stage | 2012 - 2020

→ Early-stage companies are projected to have raised \$500M more than in 2019.
 Late-stage and growth-stage companies: \$1.8Bn more.

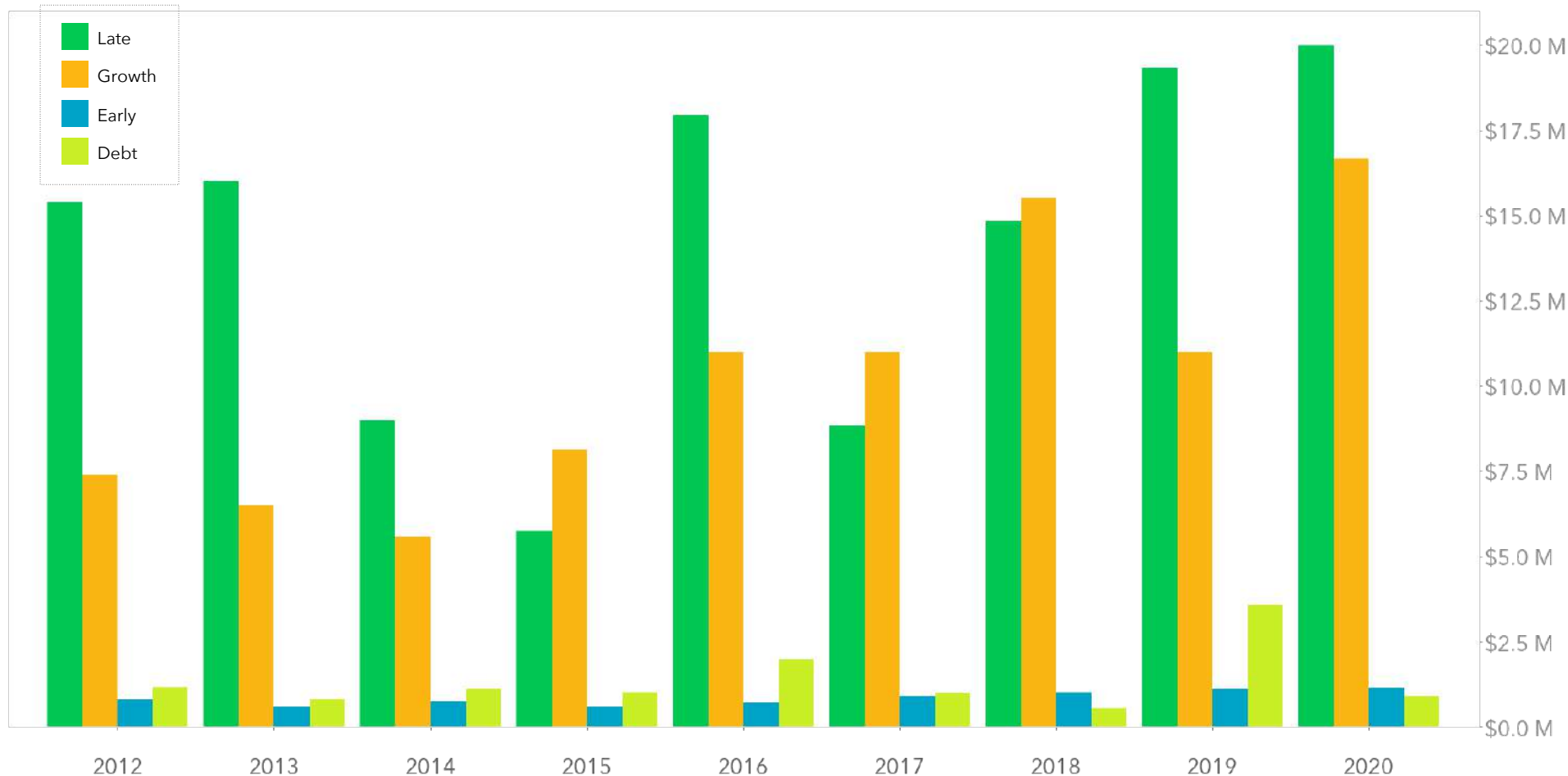


Projected Deal Count by Stage | 2012 - 2020

→ More than 135 additional early-stage companies are projected to have raised capital in 2020 than in 2019. The number of late-stage company rounds dropped in 2020, but their overall round sizes were larger.

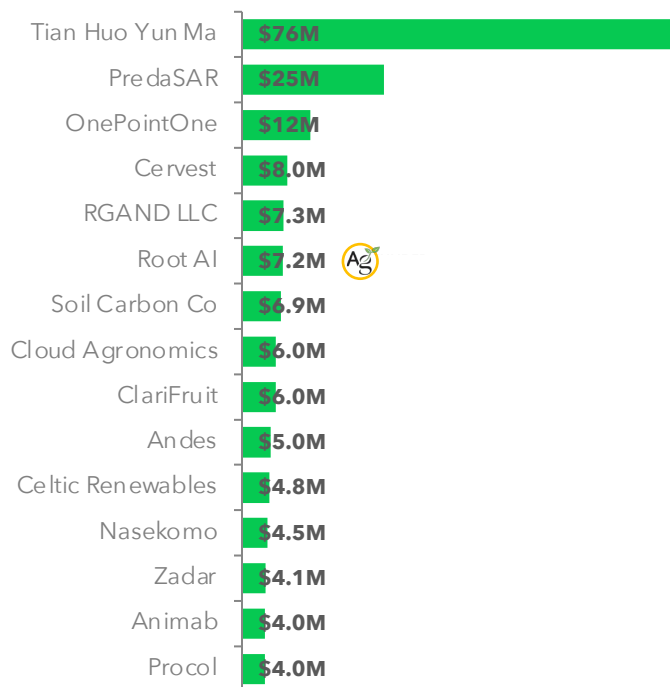


Median Round Size by Stage - 2012-2020



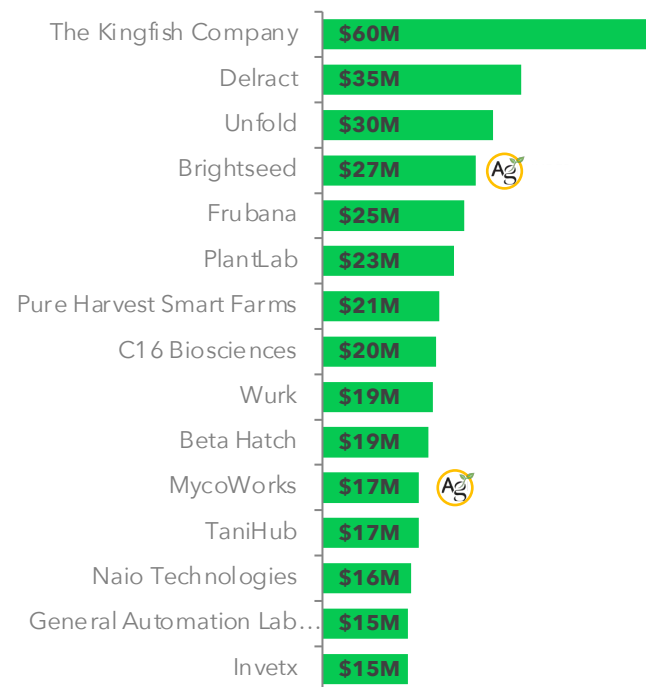
Top 15 Seed Deals

Farm robotics company Root AI raised a \$7.2m seed round, and was then strategically acquired in April 2021 by indoor farming company AppHarvest. Climate-change tech ventures are also on the list: UK-based climate-change analytics venture Cervest raised, as did Australian biotech venture Soil Carbon.



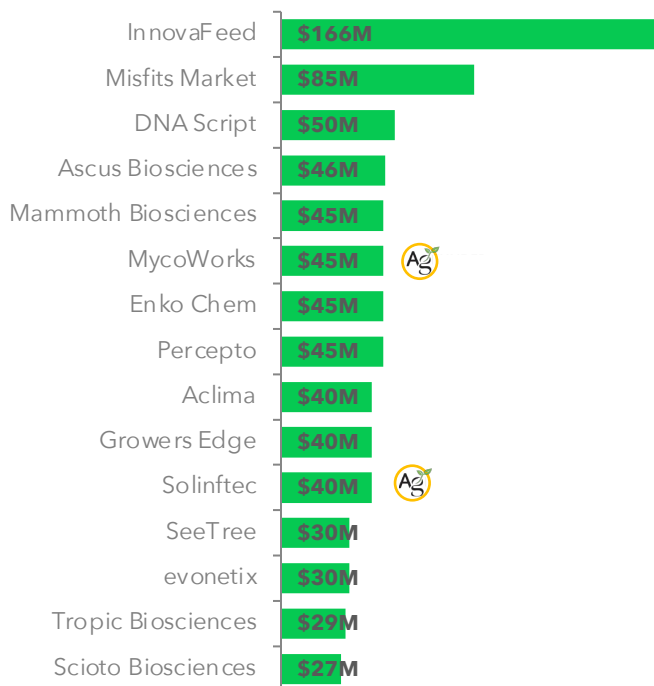
Top 15 Series A Deals

Leading the Series A list is Dutch aquaculture venture The Kingfish Company. Also in the novel farming category: UAE-based Pure Harvest Smart Farms. Unfold, a seed company created by Bayer's VC arm and Singapore's Temasek, was launched with \$30m in capital.



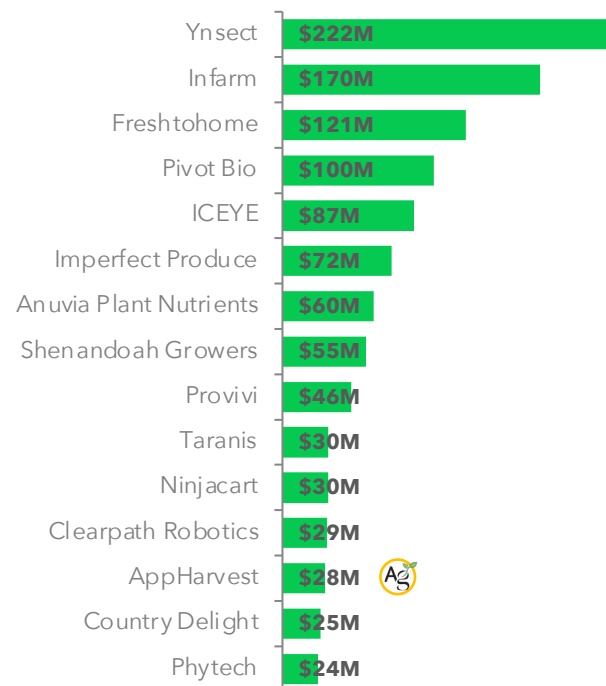
Top 15 Series B Deals

These two charts indicate that Novel Farming ventures are reaching a point of maturity. Topping the Series B list is French insect farming venture, InnovaFeed. US “ugly produce” company Misfits Market secured \$85m while expanding its online grocery selection in the pandemic. Biotech and alt-materials company MycoWorks secured a Series B six months after its Series A.



Top 15 Series C Deals

The Series C list is full of novel farming ventures: France’s Ynsect, Germany’s Infarm and US-based AppHarvest, which went public in January 2021 via a SPAC. Misfits Market competitor Imperfect Produce scored growth-stage funding. India’s Freshtohome is a niche e-grocer, offering farm-to-home meat and seafood.



 AgFunder portfolio company

Top Late Deals

- Boston-based biotech company Indigo raised a two-part Series F round, totaling \$535m. The company has put itself in the middle of the carbon market conversation. It's large funding rounds were followed by an announcement of layoffs in February 2021.
- Other big biotech rounds: Benson Hill, which raised a Series D last year, then went public in May 2021 via a SPAC. Greenlight Biosciences' Series D timed with the company's plans to use its RNA discovery platform to get into the Covid-19 vaccination race.
- US-based Farmers Business Network, a, um, farmer-to-farmer networking platform, clinched BlackRock as its Series F-round lead investor. The round followed the company's acquisition of Farmsave to expand to Australia.



2021 Insights from inform

What do you see as the biggest opportunities for your organization and your sector of the industry for 2021?

There are three major trends that offer a huge opportunity for vertical farms. First, the Covid pandemic exposed cracks in the industrial agricultural system and highlighted the need for resilient, localized solutions. Second, the demand for fresh, nutritious food is here to stay, especially as urban populations grow. Third, consumers are becoming more conscious about how and where their food is grown. These factors are reshaping the \$3.6 trillion fruits and vegetables market, but the supply chain hasn't adapted accordingly.

That's where we think the big opportunity is for Infarm. Our global network of vertical farms is revolutionizing the way we grow and distribute fresh produce, especially in cities. We've also built a strong network with partners - we currently work with 50% of the world's largest retailers - allowing us to reach consumers directly.

Our modular approach means our farms can easily integrate with existing infrastructure. Our goal is to be in 100 cities in more than 25 countries, totaling 10 million sq ft of growing capacity, by 2025.

What has been the biggest contributor to your success since the founding of your organization?

Without question, the biggest contributor to our success is our concept of modularity and a relentless focus on developing our technology.

Further, our focus on research and development has translated into a sophisticated piece of hardware that collects data from every plant. We have a broad product portfolio, with more than 75 crops, and we're looking to expand into mushrooms and berries next year.

What differentiates you from your competitors?

Our modular system, global presence, and large basket of products are unique to Infarm. Our farms require a fifth of the upfront investment of other controlled environment agriculture companies; they are easy to integrate with existing client infrastructure, such as grocery warehouses. And they begin producing in as little as six weeks.

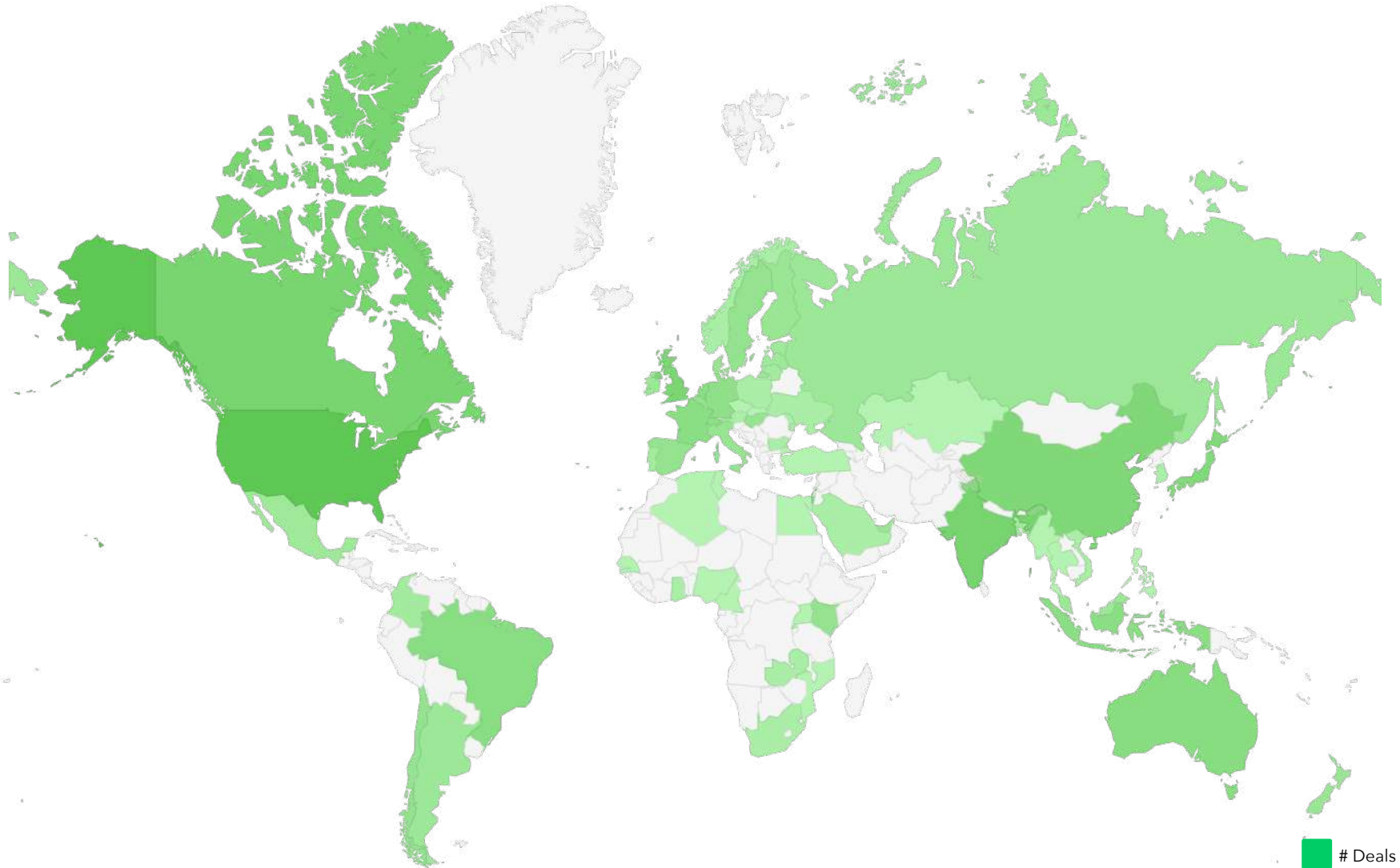
Once they're in operation, they're cloud-connected to our HQ, so we can monitor the growth of the plants and make necessary adjustments. We use that collection of data to make the whole process more efficient.

Our aim to lead the sector in the emissions discussion. By September, 90% of the electricity used throughout the Infarm network will be from green-certified sources, and we're working on a roadmap to reach carbon neutral food production.

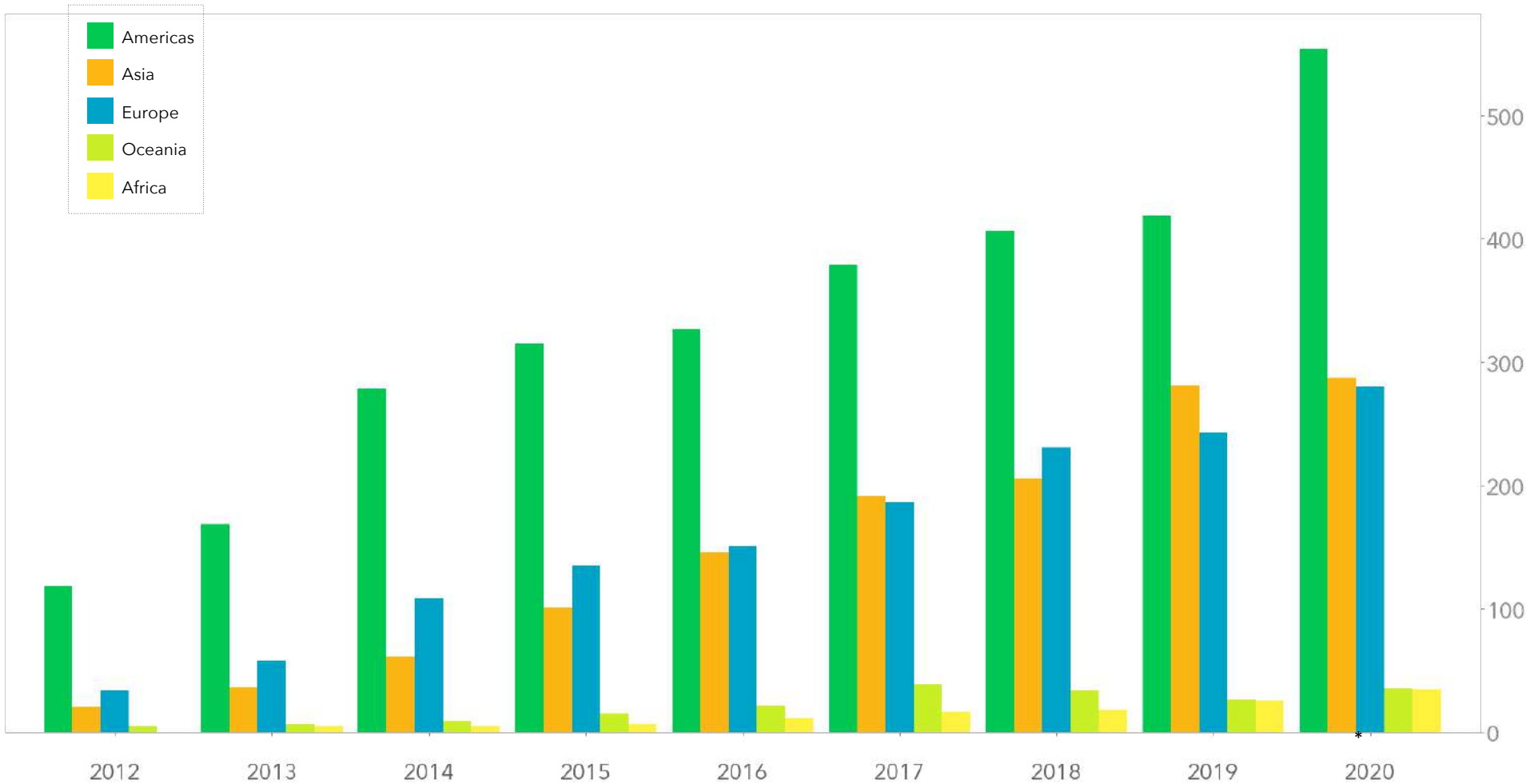


Deals by Country

Global Farm Tech Deal Activity Map

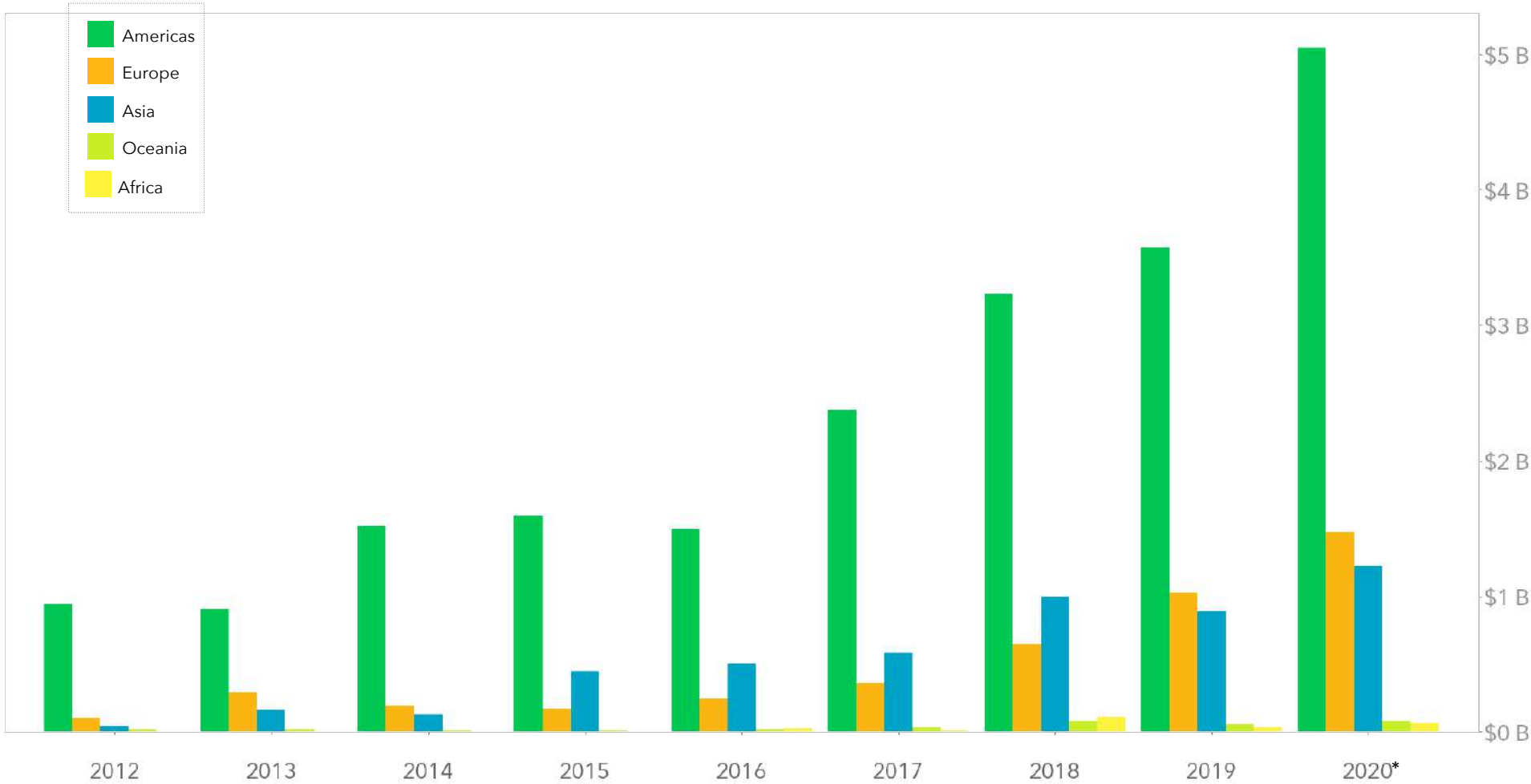


Projected Number (#) of Deals by Region



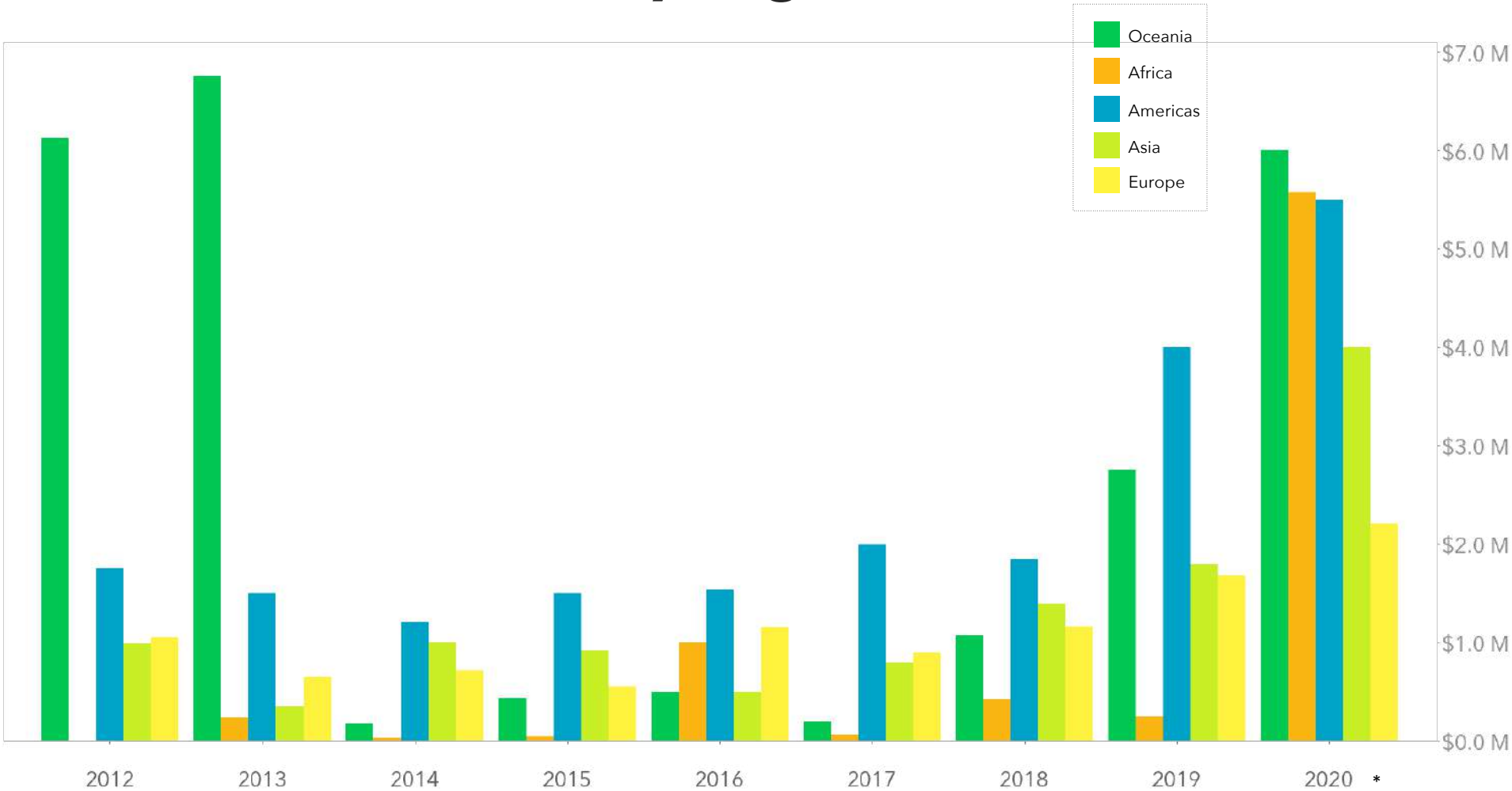
* projected totals

Projected Funding (\$) by Region



* projected totals

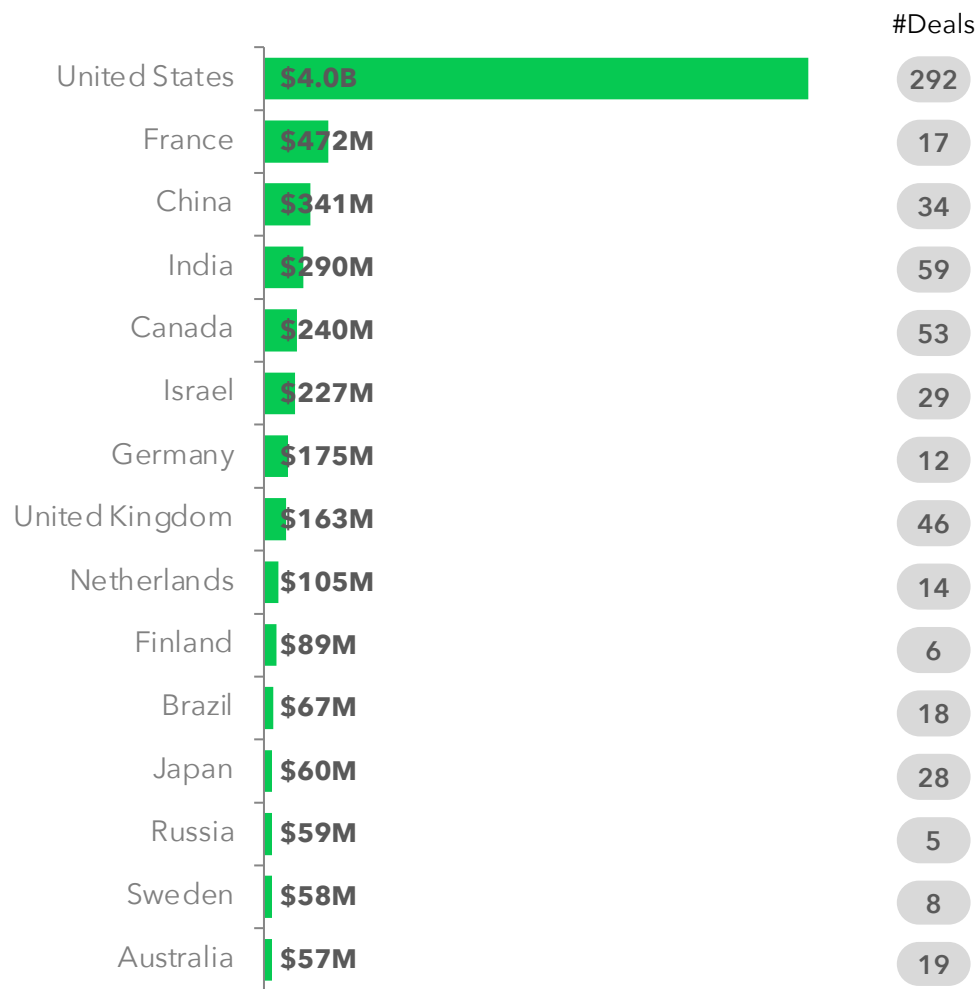
Median Round Size by Region



* projected totals

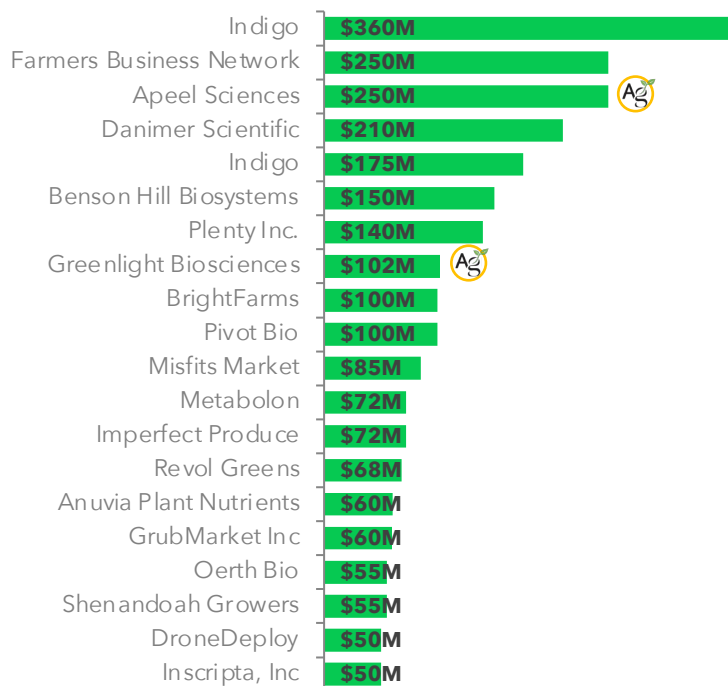
Top 20 Countries by Investment

- The US maintained its dominance in Farm Tech. California alone accounted for 35% of FarmTech investment in 2020.
- Canada saw a decline in deal count and dollars committed, but it was the site of the first ever precision ag IPO (Farmers Edge). Also, Canada's TELUS is currently executing the largest agtech roll up strategy on record.
- Asia's Farm Tech deal activity dropped for the second consecutive year. China nevertheless accounts for the second highest number of deals as the country puts more emphasis on biotech and supporting its growing farm sizes.
- European activity dropped by number of deals but grew in dollar volumes bolstered by deals like France's Ynsect and Germany's Infarm
- India continued deal and dollar-volume growth, solidifying itself as a top 5 country by investment.



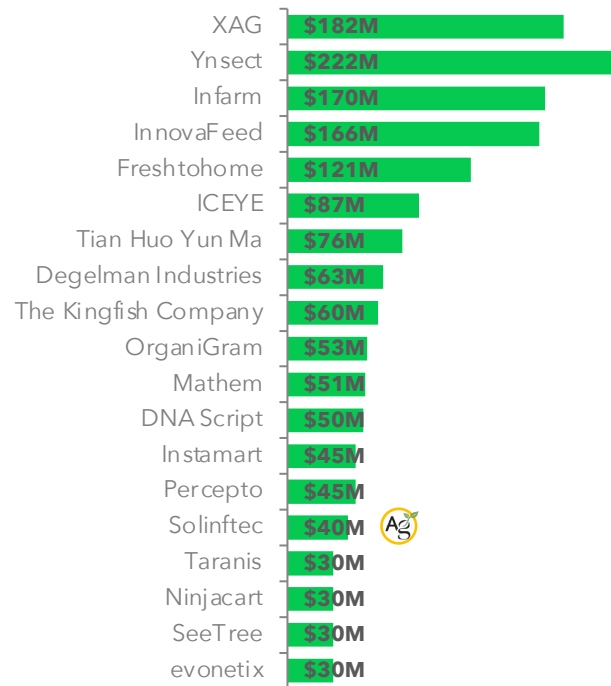
Top US Deals

The volume of US Farm Tech deals topped \$4bn in 2020, growing nearly 50% over 2019 levels. This is thanks largely to big growth-stage investments. California companies dominate. Representing other geographies: newly public Benson Hill in Missouri, and biotechs Indigo in Boston and Danimer Scientific in Georgia.

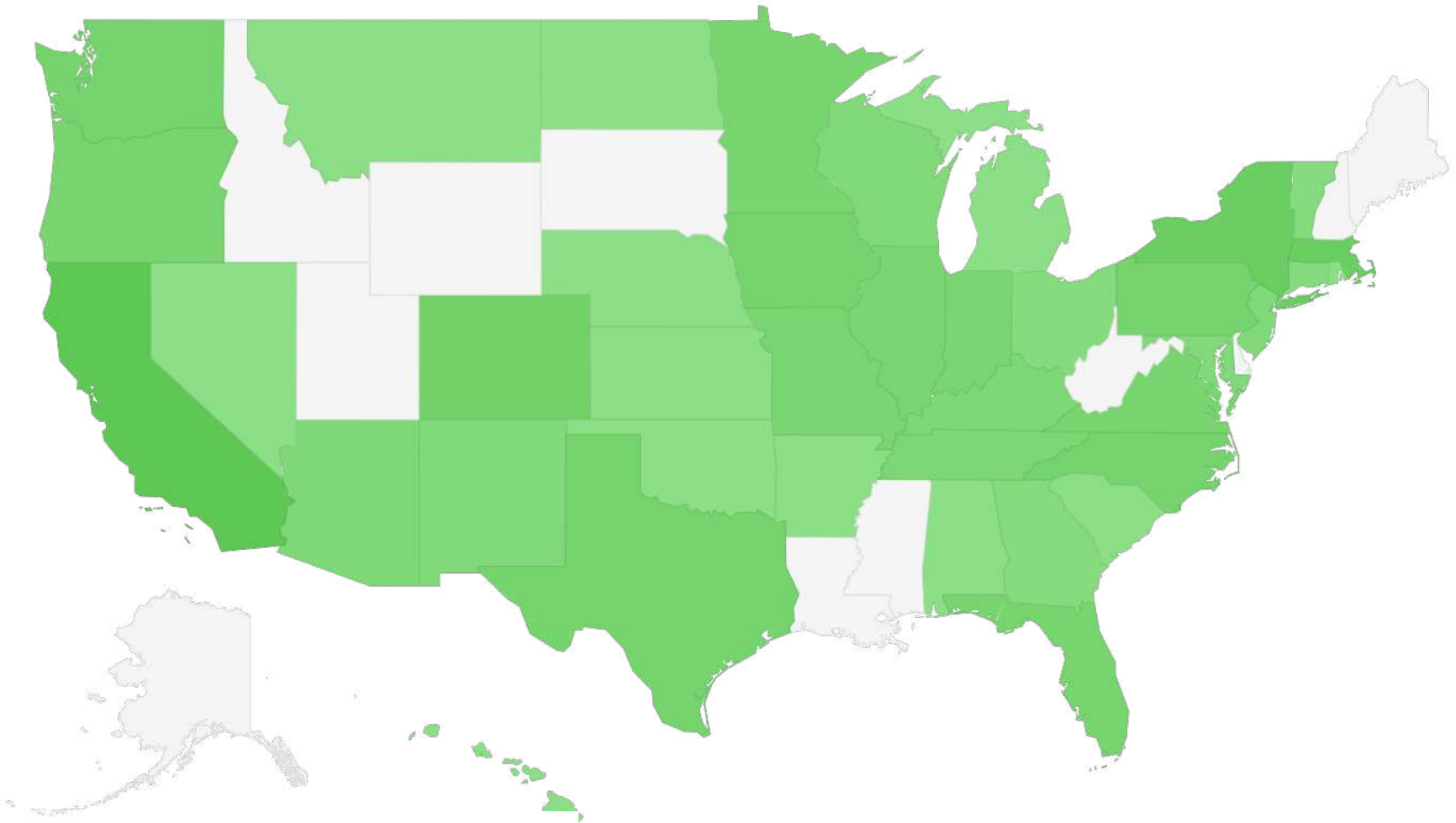


Top Non-US Deals

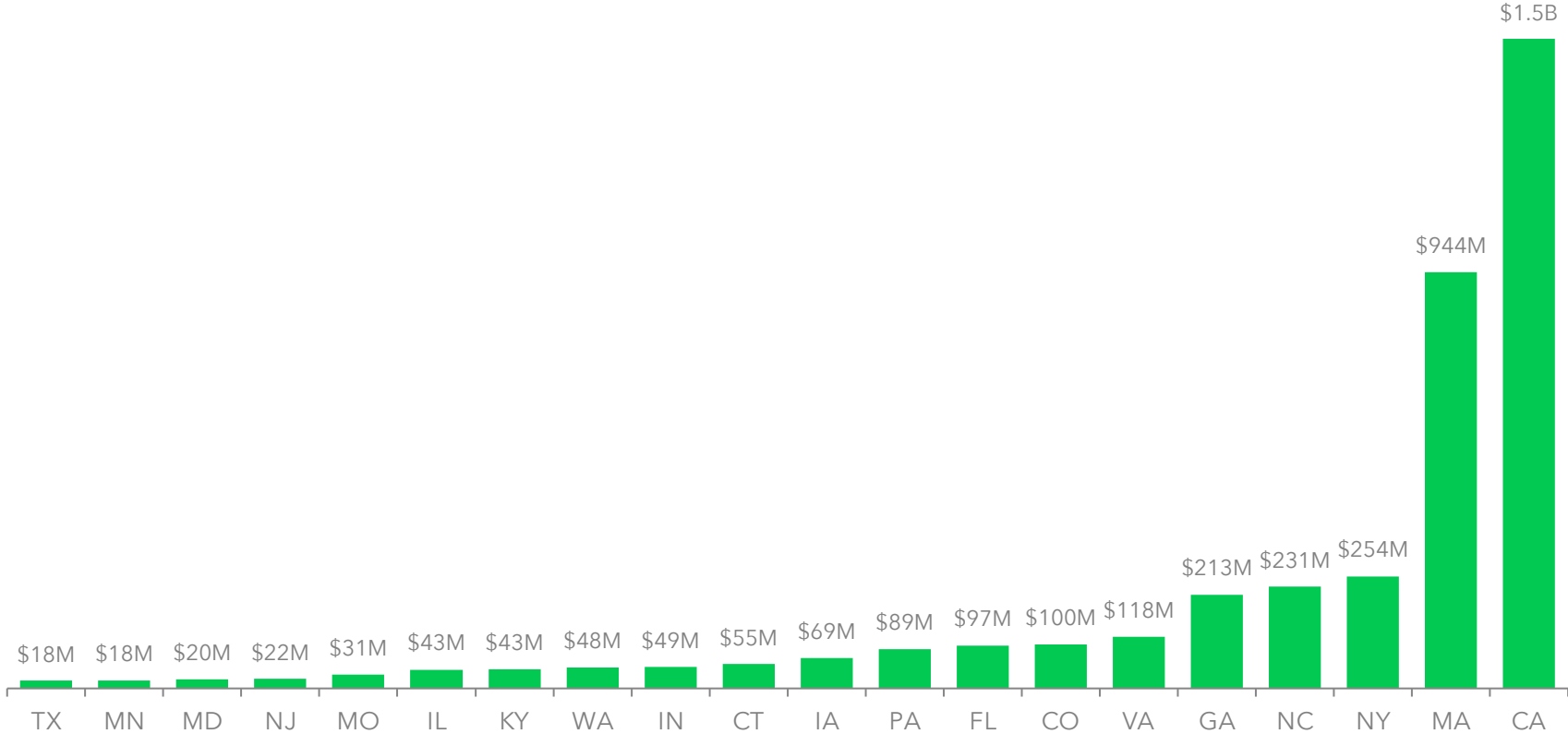
The largest deal outside of the US was Chinese drone company XAG. France's Novel Farming venture Ynsect accounted for \$139m of the country's \$472m in Farm Tech deals in 2020. Israel punches above it's weight, especially in remote sensing, with companies like Taranis and Prospera (acquired by Valmont.)



U.S. Investments: Number of Deals By State Map



U.S. Investments : Value of Investments by State



2021 Insights from Ynsect

What were the biggest challenges to overcome in 2020 and early 2021 and how did you overcome those challenges?

2020 was a record year for us! Of course, the pandemic brought with it its own set of challenges, but our reactivity and adaptability paid off. We set new records in: funding, bringing our total capital amount to \$425M to date; sales, signing \$105M worth of contracts in total; and production capacity, beginning construction of Ynfarm - the world's largest vertical farm - in Amiens, France, and acquiring leading Dutch agtech company, Protifarm, a strategic move enabling us to enter the human food market.

Also, the Molitor mealworm received a positive assessment for human consumption by the European Food Safety Authority in January 2021, which represents a huge step forward for us and the industry as a whole.

We also joined the World Economic Forum's Global Innovators Community, an invitation-only group, as the first French AgTech startup.

What do you see as the biggest opportunities for your organization and your sector of the industry for 2021?

On an industry level, we have the opportunity to reinvent

the food chain by putting insects back where they belong: at its base. We can invent a new, sustainable food industry, feeding the planet all the while protecting its biodiversity, and combatting climate change.

We also expect the Molitor mealworm to be approved as a swine and poultry feed ingredient this year by the EU.

What differentiates you from your competitors?

Our first competitive advantage is the technology powering us. We possess over 300 patents, which makes up 50% of global patents in the industry. Second, the Molitor mealworm is a premium ingredient. Mealworm protein has been shown to possess a myriad of other performance benefits, including cholesterol reduction of up to 60% and reduction of mortality in farmed fish of up to 40%, and its frass (castings) can produce greater crop yields.

What is one of the biggest misnomers surrounding insects as food?

People are often turned off by the thought of consuming insects, but they are already part of the traditional diets of approximately two billion people worldwide! Insects can aid food security and be a part of the solution to food shortages, given their high nutritional value, low requirements for land and water, low emissions of greenhouse gases, and the high efficiency at which they can convert feed into food.

Investor Activity




Most Active Accelerator Funds

RANK	INVESTOR	LOCATION	# INVESTMENTS
1	YCombinator	Mountain View, CA	14*
2	SOSV	Princeton, NJ	12*
3	TechStars Sparklabs Cultiv8 SVG Partners/THRIVE	Global Sydney, Australia Los Gatos, CA	10*
5	The Yield Lab	St Louis, MO, Rosario, Argentina, Dublin, Ireland	8
6	Plug & Play Ventures	Global	5
7	StartLife 500 Startups	Amsterdam, The Netherlands San Francisco, CA	3

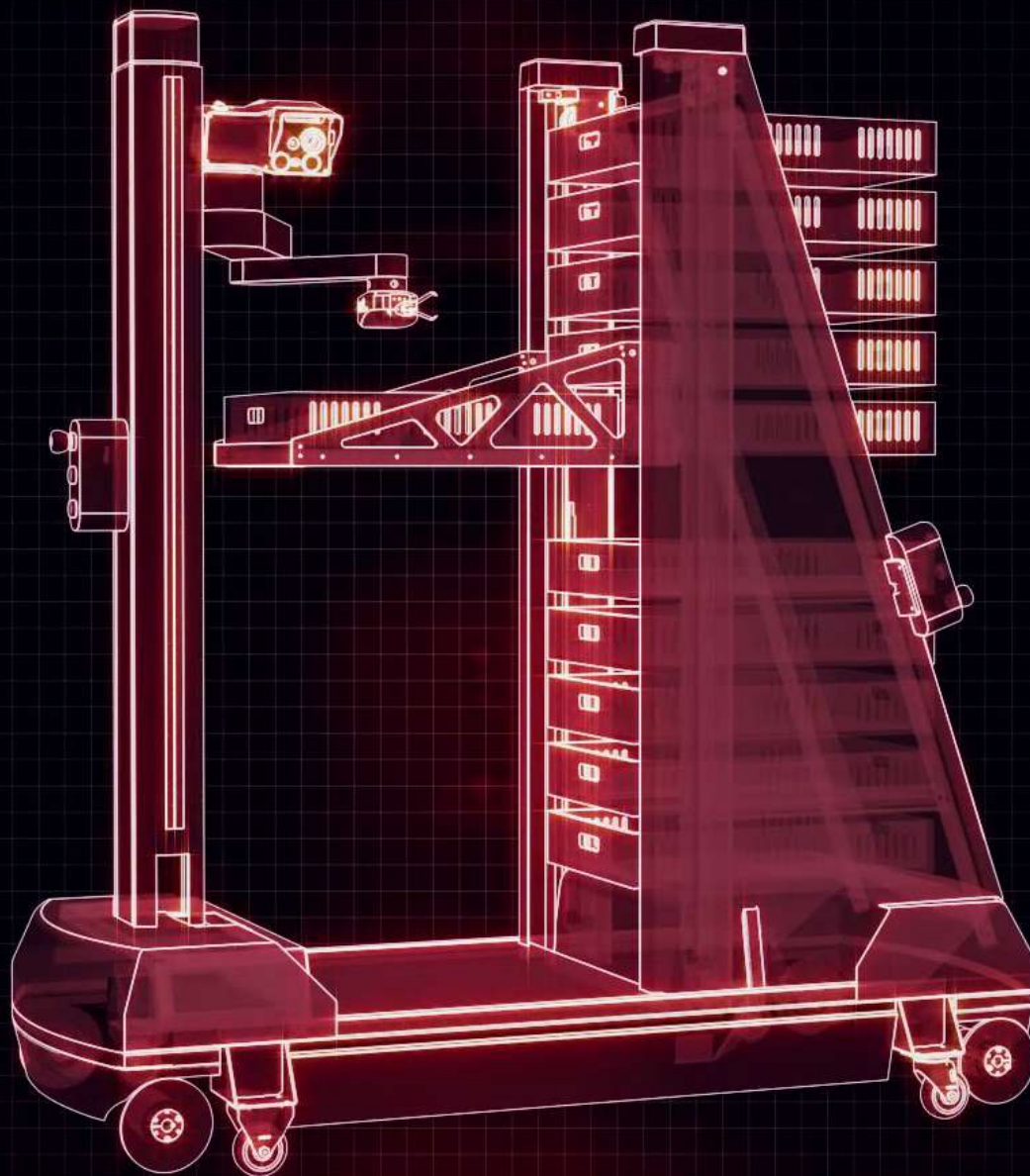
*includes investments made by multiple accelerators and/or follow-on funds

Most Active Venture Capital Fund Managers*

RANK	INVESTOR	LOCATION	# INVESTMENTS
1	S2G Ventures	Chicago, IL	13
2	Innova Memphis	Memphis, Tennessee	11
3	Temasek	Singapore	9
 4	AgFunder	San Francisco, CA	8
5	Astanor Ventures	Brussels, Belgium	8
6	Ospraie Ag Sciences	New York, NY	7
7	Abu Dhabi Investment Authority Omnivore Rabobank Food & Agriculture Trendlines	Abu Dhabi Mumbai IN Utrecht, The Netherlands Tel Aviv, Israel	6
8	Leaps by Bayer Ag Ventures Alliance Crowdcube International Finance Corp	Leverkusen, Germany Mason City, IA London, UK Washington DC	5
9	Prelude Ventures Finistere Ventures Creadev Cavallo Ventures Pymwymic Continental Grain Company Anterra Capital Pontifax AgTech	San Francisco, CA San Diego, CA Paris, France San Francisco, CA Amsterdam, The Netherlands New York, NY Amsterdam, The Netherlands Los Angeles, CA	

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

EXITS



Exits so far in 2021

At last, exits have been a theme so far in 2021. Everything from IPO's, to acquisitions to SPACs, 2021 has seen it all! Not only are they coming in faster than previous years, they are coming in with much larger valuations than we have seen over the last couple years. In fact, we have seen valuations in the multi hundred million dollar range all the way into the billions. The last significant farm tech exits we saw were in 2017 when Granular and Blue River Tech were both acquired for around \$300 million each, so it's been a long time coming and many venture capital firms are breathing a sigh of relief!

Two notable hot spots for exits have been in farm management software, synthetic biology and gene editing. The farm management platforms are being swallowed into larger, fully-connected value chain strategies while the capabilities of synthetic biology and CRISPR technology companies to help deliver better outcomes for farmers, consumers and the environment continue to gain interest.

The convergence of markets flush with capital, non- agrifood organizations with a growing interest in investing in the sector - e.g. telecommunications giant TELUS -- and agrifood players seeing the opportunity to acquire or roll-up technologies according to their strategic needs.

Key Non-SPAC Farm Tech Exits 2021

Type	Company	Category	Valuation
IPO	Farmers Edge	Precision Ag	\$600m
M&A	Prospera <i>(by Valmont)</i>	Crop analytics	\$300m
M&A	Dagan <i>(by Regrow)</i>	Soil health analytics	N/A
M&A	FarmDog <i>(to Deveron)</i>	Crop scouting tech	N/A
M&A	FarmLogs <i>(to Bushel)</i>	Farm software	N/A
M&A	Conservis <i>(to TELUS/Rabobank)</i>	Digital Farm ERP	N/A
M&A	Farmobile <i>(to AGI)</i>	Farm data management	
IPO	Caribou Biosciences <i>(Nasdaq)</i>	Gene editing	~\$900m

*See next page for SPACs!

SPAC Attack

The year 2021 has been all about the SPAC.

A SPAC, for “special purpose acquisition company,” is a shell company with no operations or assets that raises money and lists on a public exchange through an initial public offering (IPO) with the sole purpose of acquiring or merging with a private venture. Also known as “blank check companies,” they can be vague in their remit although some have a target sector in mind, like agtech or climate-related businesses.

In the first half of 2021, there have been six agtech SPACs, all valuing the early stage venture involved at over \$1 billion. In the same time period, there has been just one significant acquisition that was disclosed; Prospera, a farm management software and remote sensing business was [acquired by Valmont for \\$300 million](#).

Given that major acquisitions have been few and far between, and the agribusiness majors have shown little sign of buying many more companies for several hundred million, SPACs have come at just the right time for the agtech venture industry.

Many are also effectively listing on the promise of their growth and impact, rather than their current financials. But how long will they continue?

Farm Tech SPACs to-date

Year	Company	Category	Exchange
2017	Bioceres	Ag Biotech	NYSE
2021	AppHarvest	Greenhouse	Nasdaq
2021	Benson Hill	Ag Biotech	NYSE
2021	AeroFarms	Vertical Farm	Nasdaq (pending)
2021	Ginkgo Bioworks	SynBio	Nasdaq (pending)
2021	Local Bounti	Vertical Farm	NYSE (pending)
2021	Planet Labs	Satellite imagery	NYSE (pending)

2020 M&A Insights

Despite the interruption of Covid-19 and resulting slowing adoption of agtech, it was one of the strongest years on record for M&A. We tracked 37 completed deals in 2020, comprised of agronomic data and analytics, farm operations and profitability management, irrigation control, and biologicals. US-based acquisitions represented over 50% of deals, similar to 2019, followed by Europe (19%), and Asia-Pacific (11%).

A few other trends to look out for in 2021:

- Deal activity between tech providers in the same category grew such as irrigation tech driven by Valmont and CropX. Precision water monitoring and control brings measurable cost savings to growers while lessening management time and resource usage, a combination that will lead to more strategic acquisitions, especially by strategics and retail distribution participants.
- Non agrifood companies are coming into the fold such as Telus, a Canadian telecommunications company that's purchasing several agtech companies for a new business unit. Verdant received significant inbound M&A interest from non agrifood groups in 2020.

from **VERDANT**
P A R T N E R S

- Consolidation among biologicals companies increased in 2020 and we expect that to continue particularly for companies with proprietary formulations and proven traction. Driven by consumer and policymaker sustainability demands; improving product efficacy; and increasing crop tolerance to conventional alternatives, biologicals are increasingly popular with farmers.

2021 predictions

- Consolidation in 2021 will be driven by resource efficiency tech and profitability optimization.
- Carbon platforms and digital measurement, monitoring, and marketplaces to support this sector, are more efficiently acquired than built.
- Stronger interest from private equity buyers and continued consolidation by ag retail.
- Data collection, analytics, and management players will continue consolidating niche products and services into complete, robust solutions through a single user interface.

Farm Tech M&A and Exits | 2020

Target	Target country	Acquirer	Technology	Est. Price	Select exit investors/owners
Rivulis	Israel	Temasek	Irrigation Tech	\$365m	
Growers Holdings	USA	Israel Chemicals (ICL)	Farm Management SW	\$60m	
AgSense (49%)	USA	Valmont	Irrigation Tech	\$42m	Foundation Capital, Chrysalix VC, Chilton Investments
ClearAg	USA	DTN	Data & Analytics	\$12m	
Verdant BioSciences (52%)	Singapore	Ackermans & van Haaren	Biotechnology & Biologicals	\$8.6m	
Trellis	USA	Akerna	Novel Farming Systems	\$2m	
151 Research	Canada	AGCO	Sensing & IoT		venBio Partners, Arrowmark Partners
Affinity Management Ltd. (Compass)	Canada	Ag Growth International	Farm Management SW		
Agbridge	USA	Nutrien Ltd.	Sensing & IoT		
AGI AgIntegrated	USA	TELUS	Data & Analytics		
Agrian	USA	TELUS	Farm Management SW		MPM Capital, Avalon Ventures, Kansas Bioscience Authority
Agrilution	Germany	Miele	Novel Farming Systems		
Agrinos	USA	AMVAC	Biotechnology & Biologicals		
Cibus (Canola)	Canada	FBN	Biotechnology & Biologicals		
Crop Boss	Canada	Provision Analytics	Farm Management SW		
CropMetrics	USA	CropX	Irrigation Tech		
enEvolv, Inc.	USA	Zymergen	Biotechnology & Biologicals		
Farmsave	Australia	FBN	Ag Marketplace		

Farm Tech M&A and Exits | 2020

Target	Target country	Acquirer	Technology	Select exit investors/owners
Geocom	Brazil	Koppert Biological Systems	Precision & Equipment	Farm Journal
Greenbook	USA	AgWorld	Data & Analytics	
Grupo Agrotecnologia	Spain	Rovensa	Biotechnology & Biologicals	
Haplotech	Canada	FBN	Biotechnology & Biologicals	
Harvest Profit	USA	Deere and Company	Farm Management SW	
HydroGro	USA	The McGregor Company	Advanced Breeding	
Net Irrigate LLC	USA	Lindsay	Irrigation Tech	
Pathway Biologic	USA	Plant Response	Biotechnology & Biologicals	Robert Bosch GmbH
Plantect	Japan	Bayer CropScience K.K.	Novel Farming Systems	
PrecisionKing	USA	Valmont	Irrigation Tech	
Probe Schedule	USA	Wilbur-Ellis Company	Irrigation Tech	Pacific Channel
Regen	New Zealand	CropX	Irrigation Tech	The Yield Lab, BioGenerator, Allen Angel Capital
RNAgri Inc.	USA	RNAissance Ag LLC (TechAccel LLC)	Biotechnology & Biologicals	
Salesbee	Switzerland	Plantix (PEAT GmbH)	Ag Marketplace	Metalmark Capital
Valagro	Italy	Syngenta Group	Biotechnology & Biologicals	Latitude GPS
Visio-Green Agriculture	France	Sencrop	Sensing & IoT	
Westbridge Agricultural Products	USA	Erber Group	Biotechnology & Biologicals	e-Novia & Valagro
Yaxe	Italy	e-Novia & Valagro (JV)	Farm Management SW	Green Towers GmbH, Ergas Ventures LLC.



Sources & Methodology

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 digitized 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 16 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 50 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 834 financings in this report's curated dataset, 227 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 16 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.

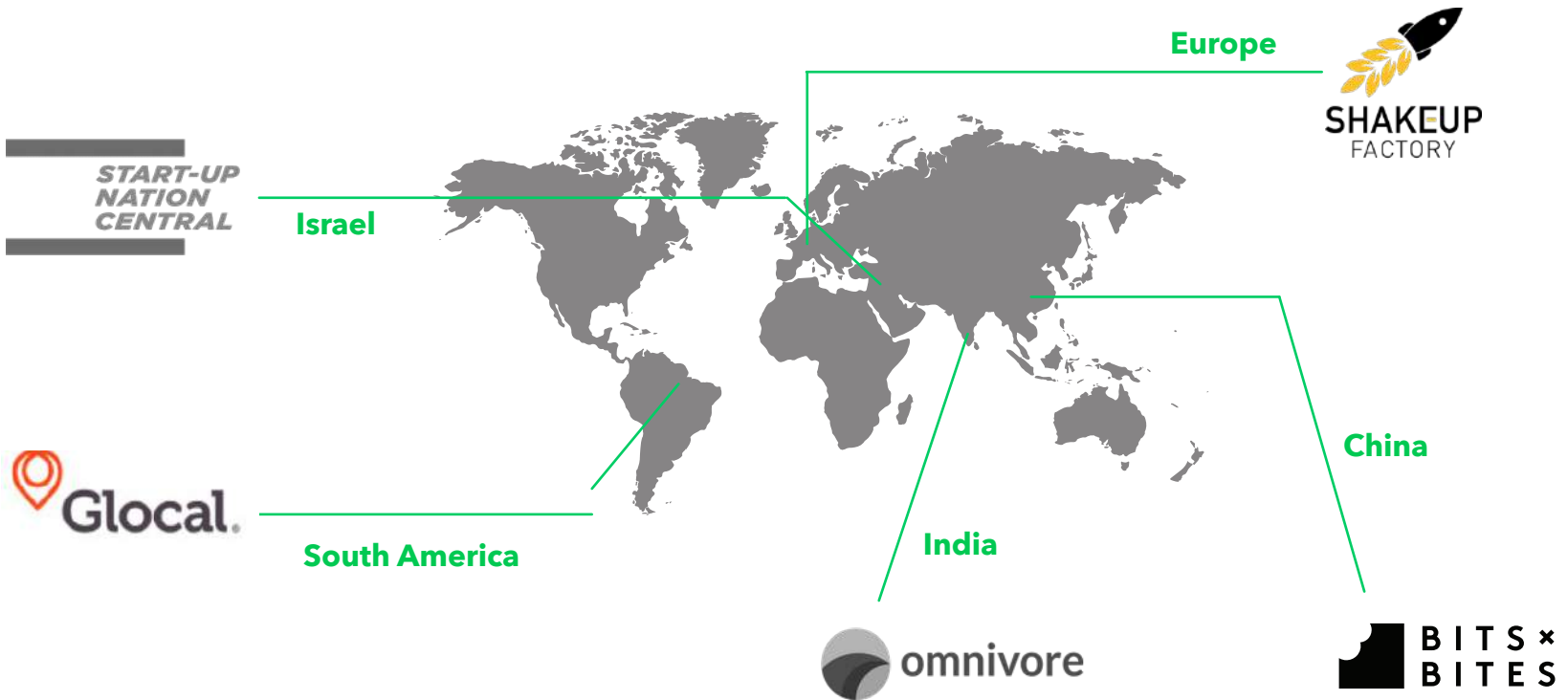
Special Acknowledgement

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



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 2020 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. Thanks also to Sofia Ramirez for her Latin America contributions.



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



Data@AgFunder.com
or add direct onto
Crunchbase.com

