AgFunder | OnRamp Agriculture

AGRICULTURE CVC INSIGHTS REPORT

2021

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DEPT. OF ECONOMIC DEVELOPMENT

INTRO

When AgFunder and gener8tor set out to compile this report, it was set against a backdrop of furious deal activity in the agrifoodtech sector… and an ongoing global pandemic. The trend was counter-intuitive by all counts. Globally, many venture capital firms hit pause on dealmaking in April as rolling lockdowns shut borders and crippled markets. Startups and venture capital investors went into survival mode. But then they caught their breath and began to pivot. By mid-year, investors were cutting checks again. The final tally of agrifoodtech investment dollars committed in 2020 is expected to outpace 2019 by 34.5%, according to AgFunder's 2021 AgriFoodTech Investment Report.

Remarkably, capital rushed into "upstream" innovations—those closest to the farm, and often the most capital, time and resource-intensive. Robotics. Remote sensing. Biotechnology. Alternative proteins and other novel foods; investors were signaling their commitment to the long-term future of food rather than just the next software unicorn.

Few have more to gain from this mindset than agrifood corporations. Amid shifting consumer preferences and labor trends, regulatory pressure over agrichemical use, and an overall global push to make the food system greener and more sustainable, agrifood corporations are betting on new innovations to help them align their businesses for long-term trends and profitability.

This report takes an up-close look at six major agrifood companies' corporate venture investing activities. The biggest players, Syngenta Ventures and Leaps by Bayer, share insights of their priorities amid the recent market consolidation of agrichemical competitors and peers. Cargill provides a deep dive on investments addressing animal health and nutrition as the company restructures its venture investing unit. ADM Ventures and newly-launched FMC Ventures discuss kicking their investment activity into high-gear in 2020. And BASF Venture Capital highlights the urgency of catalyzing change in the agrichemicals industry.

Collectively, the interviews and data presented in this report reveal that while agrifood corporates may have historically been slow to recognize and embrace change, their venture teams are fully aligned and invested in where the future of food and agriculture is going.

Joe Kirgues and Troy Vosseller - Co-Founders of gener8tor
Louisa Burwood Taylor - Head of Media & Research of AgFunder

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GROUP DATA:
NUMBER OF AGTECH CVC INVESTMENTS, BY YEAR*

In spite of the difficulties of 2020, it was a busy year for agrifoodtech investing and corporate venture capital in the sector followed that trend. If anything, the CVCs in our sample were slower to cut new checks in 2019 than the industry at large.

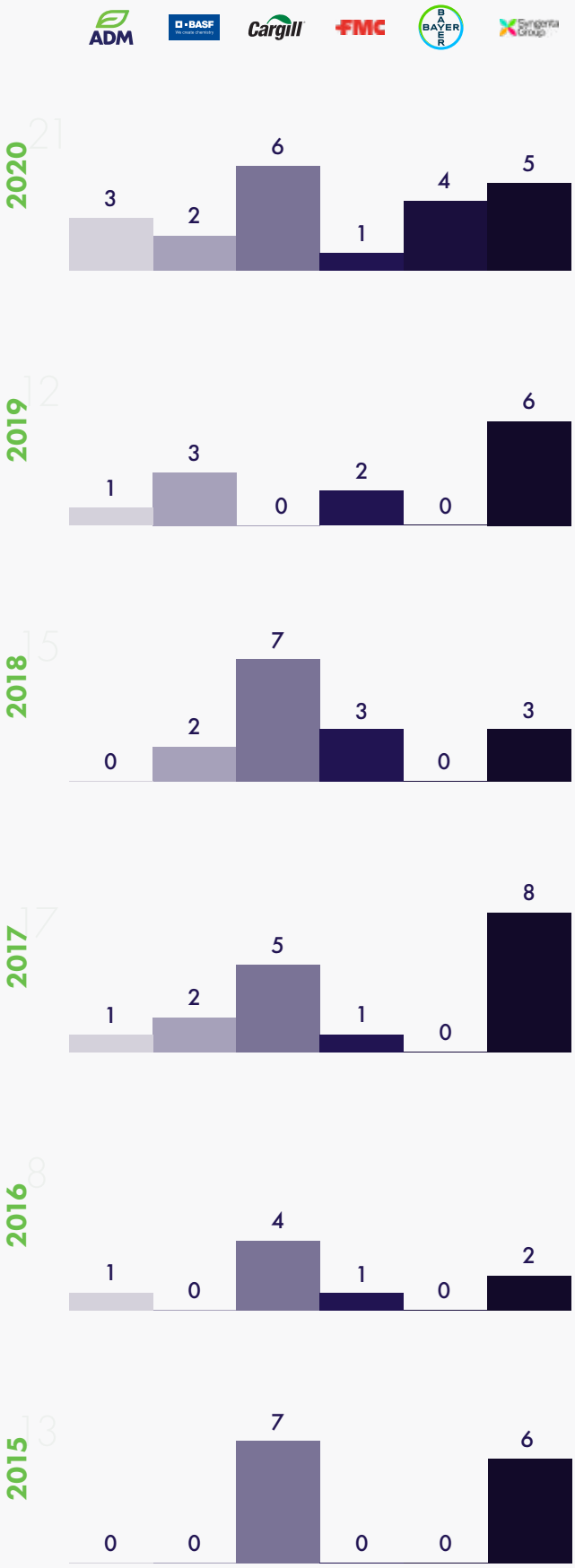
The data presented on pages 4-7 provides an overview of investment activity for the six agriculture CVCs we profile in depth in this report. Within this sample, there were a total of 92 investments made in 66 companies between 2015-2020. The chart to the right.

There were a total of 92 investments made in 66 companies by the six CVCs in our dataset between 2015-2020.**

FMC launched its venture arm in 2020, and came out of the gate making four investments since June. ADM Ventures also ramped up its investment activity.

2020

As with the agrifoodtech investing industry at large, CVCs dialed up activity in 2020. The year, otherwise known for a global pandemic, was the most active year for CVCs in our sample.



*The number of investments between 2015-2020 does not necessarily correspond with the number of companies in each CVC's portfolio. Some have made investments pre-2015 that are still in their portfolios. Others have since exited companies made between 2015-2020.
**Five of the 92 deals are not included in the tables because the year the investment was made could not be clarified in time for publication. One of the five investments is by ADM Ventures and the other four are by Syngenta Ventures.
***ADM made two investment in Agrible, in 2016 and 2017. These investments preceded the founding of ADM Ventures, but have been included in our dataset. ADM has since exited Agribible.
****Bayer acquired Monsanto in 2018, including its entire CVC portfolio. Pre-2018 data for Leaps by Bayer includes Monsanto's and Bayer's agrifoodtech venture investments.

GROUP DATA:
NUMBER OF AGTECH CVC INVESTMENTS BY FUNDING STAGE

CVCs are identifying unique investment opportunities and working to make those grow with follow-on capital.

There are a number of examples of follow-on funding, primarily from Leaps by Bayer (CoverCress, Newleaf Symbiotics) and Syngenta (Greenlight Biosciences, Sound Agriculture), which have been the most active CVCs since 2015.

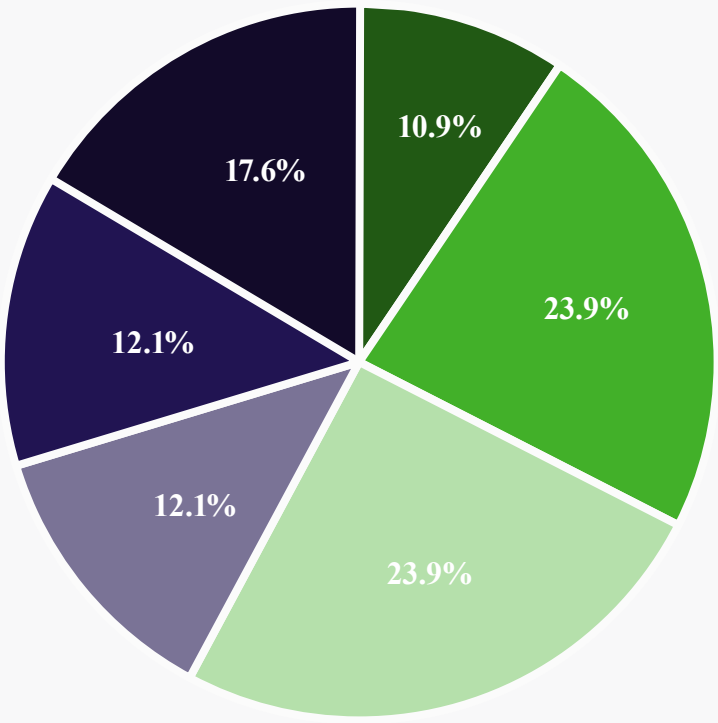
There are also a few co-investments between Leaps by Bayer and Syngenta Ventures (AgBiome, Blue River Technologies, Boragen).

Companies that raised multiple rounds of funding include:

CoverCress Inc.
The cover crop that pays

GreenLight BIOSCIENCES

NewLeaf symbiotics



Seed
10 Investments

Series A
22 Investments

Series B
22 Investments

Series C
11 Investments

Series D or Later
11 Investments

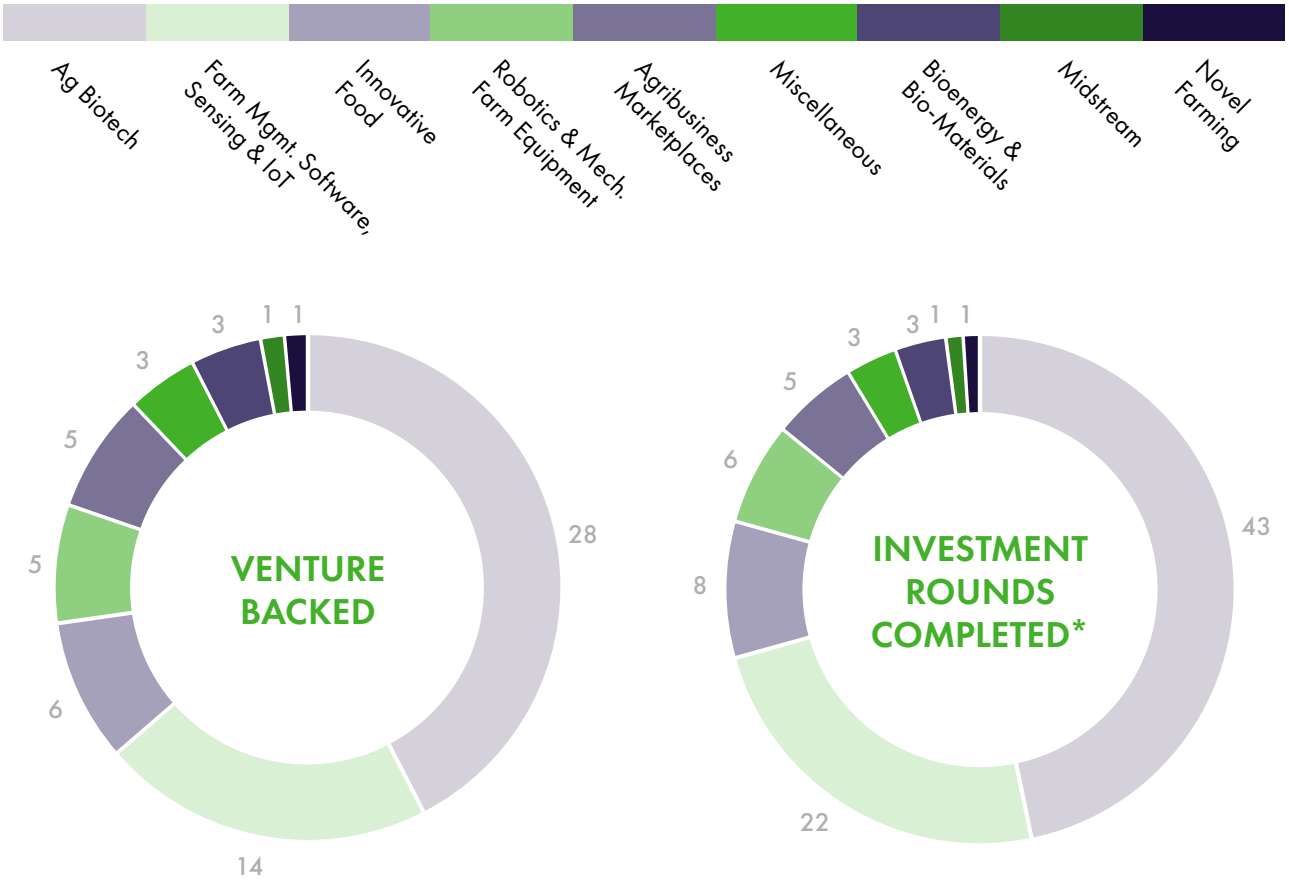
Unknown
16 Investments

GROUP DATA:
NUMBER OF COMPANIES BACKED AND INVESTMENTS MADE, BY CATEGORY

Investments in the Ag Biotech category dominate CVC investment activity. That should be no surprise,given that the companies profiled in this series encompass some of the largest agri-chemicals companies in the world.

Logically, this category includes the largest number of follow-on funding rounds among the companies in the sample—meaning they're often doubling down on their Ag Biotech bets.

Agbiotech investing among CVC far exceeds the average across all agrifoodtech investment firms, counting for 47.3% of investment rounds among the CVCs we profiled versus just 6% industry-wide.

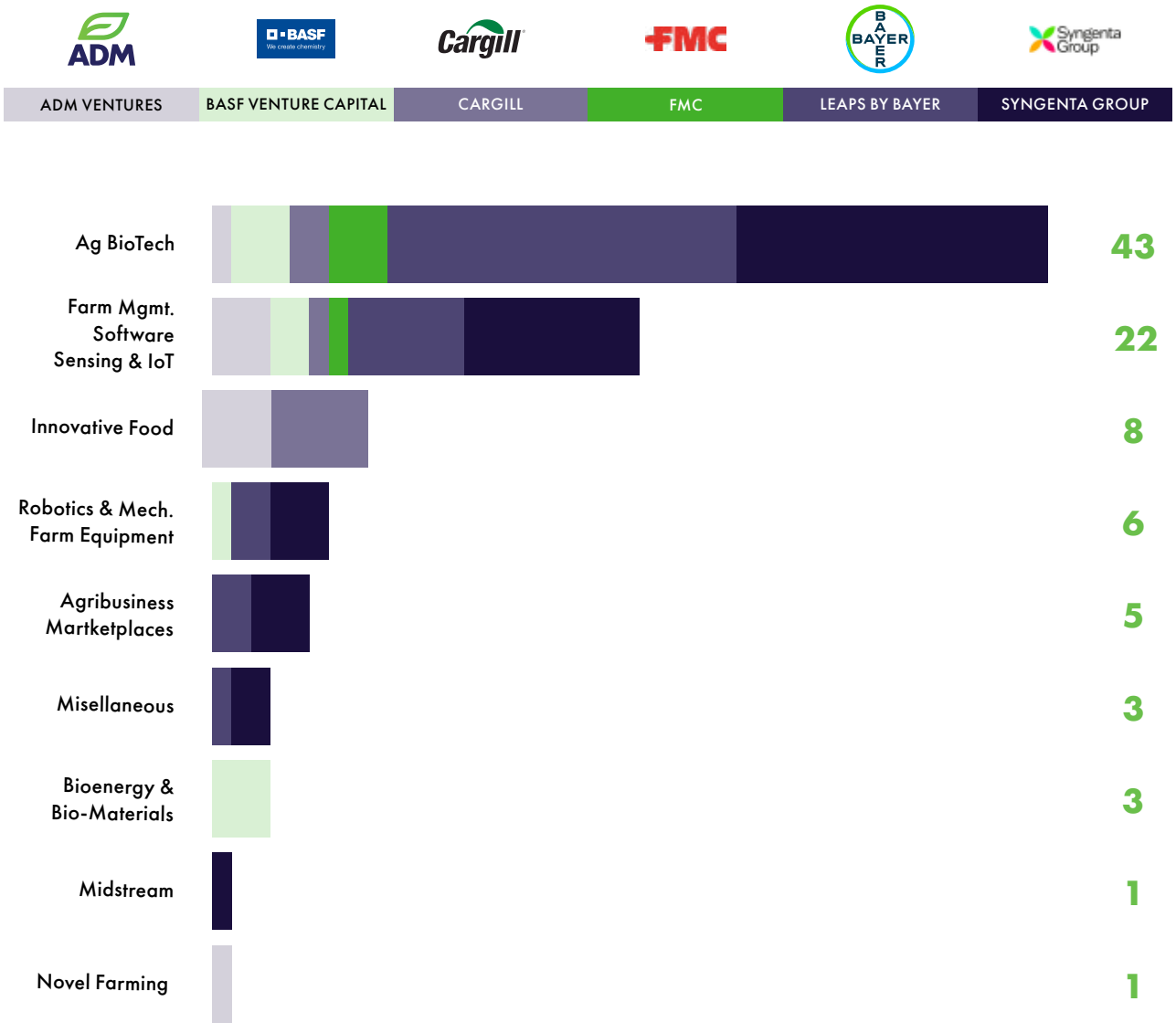


*There are more rounds than companies because some companies raised multiple funding rounds over the period of 2015-2020.

GROUP DATA:
NUMBER OF INVESTMENTS MADE ACROSS EACH CATEGORY, BY COMPANY

There are a few standout data points: BASF Venture Capital is the only company investing in the bio-energy and bio-materials sector, backing companies like Lactips, which is using waste from the dairy sector as a packaging alternative. Interestingly, BASF Ventures does not count these as part of its agrifood portfolio internally.

Cargill is the biggest investor in the Innovative Food category from this group, backing three alternative protein companies: Aleph Farms, Puris and Memphis Meats. It also re-upped its investment in Puris.



*There are more rounds than companies because some companies raised multiple funding rounds over the period of 2015-2020.

ADM VENTURES
PORTFOLIO SNAPSHOT

ADM Ventures in its current form began making investments in 2018. It has five companies in its portfolio, spread across a number of different agrifood tech sectors. ADM Ventures has not disclosed how much capital it has invested.

Archer Daniels Midlands had other investments in its portfolio prior to launching the current iteration of its venturing arm. Also included in our group data set: ADM's 2016 and 2017 investments in Agrible, a U.S.-based farm management software, which ADM has since exited after Nutrien bought the platform in 2018.

Nature FYND
$117.5M
2012 • Chicago, IL
Biotechnology firm intended to convert waste feed stock to valuable commercial products

Geltor
$117.5M
2015 • San Leandro, CA
Biodesign company intended to offer a selection of designer proteins with biocompatibility, functionality, and other benefits.

Aquinovo
$1.5M
2015 • Rehovot, Israel
Operator of materials solution designed to accelerate fish growth.

**Dollar amount is total raised as noted in Pitchbook.*

COMPANY	LOCATION	TECH CATEGORY	YEAR OF INVESTMENT
Air Protein	US	Innovative Food	2020
AquiNovo	Israel	Novel Farming	2020
Geltor	US	Ag Biotechnology	2020
Nature's Fynd	US	Innovative Food	2020
Perfect Day Foods	Ireland	Innovative Food	2019
PitPat	UK	Farm Mgmt. Software, Sensing & IoT	-

AGTECH CVC: ADM VENTURES

ADM Ventures on the many ways corporations can invest in innovators

Victoria de la Huerga
Former Vice President
ADM Ventures

Archer-Daniels-Midland (ADM) launched its venture investing group in 2016. ADM Ventures' Victoria de la Huerga, prior to her moving over to ADM's Nutrition business unit as President of Sweet & Dairy, discussed the group's investment priorities and how the four-year-old corporate venture group is building capacity for the next generation of agrifood technologies. ADM Ventures' is now helmed by Ian Pinner, Chief Strategy and Innovation Officer at ADM.

Share a bit about ADM Ventures' approach to corporate venturing.

Victoria de la Huerga: We have a hybrid model that we use within our corporate venture capital team. We certainly do the more traditional side of venturing, which is looking outside of our four walls to interesting startup companies that are solving real problems in the world. We also incubate ideas within ADM—those could be new product development initiatives, new business models, or new business opportunities for ADM.

And we also invest in funds as limited partners.

Our focus is on human and animal nutrition and sustainable materials. When we invest in startups, we typically like to come in as a minority investor at the Series A level. We invest quite a bit earlier than a lot of others.

For your direct investments, does ADM Ventures aim to also be strategic partners, or just financial backers?

Usually startups are coming to us for more than just the money. There are a lot of venture capital firms and family offices that are more than willing to invest money. With us, they're interested in our expertise too. Or pilot equipment. Or commercial reach. Or manufacturing assets. So we think about how do we help de-risk what they're doing, and are there competencies that make this a good partnership at the end of the day?

While we invest directly, we also play matchmaker with our commercial teams across ADM, identifying partnership opportunities. Those may or may not include a capital investment. For example, there could be a unique opportunity for our commercial team to provide ingredients to a startup in the more traditional business-to-business manner.

You have a unique perspective on

corporate venture capital because you were part of a private company, WILD Flavors, that was acquired by ADM. What have you learned from that experience, and how has that has shaped your approach at ADM Ventures?

Many corporate venture groups lever somebody that works for the company to lead their group, because there is understanding about the company and they likely have a good network within the company already.

There's also an advantage of balancing that by bringing people in from the outside as well. This is a very relationship-oriented ecosystem, and you need people with good external networks.

Do you have an example or two in mind of companies you've invested in?

When we formed ADM Ventures, one of the first areas that we looked into was alternative proteins. We aren't as focused on plant-based because ADM has a whole group of people that focused on that. We're focused on what's coming after plants—companies that are leveraging fermentation to create alternatives to animal-derived proteins. Insects as a protein source. Algae, though that has been out there for a while.

We made some very early investments in the space, each one using a slightly different methodology and addressing a different need in the world.

One of them is Perfect Day, which is creating dairy-derived proteins without animals. We also invested in Geltor, which is making animal-free collagen and gelatin products. And the third one is Nature's Fynd. They are leveraging fungal sources to create a high-quality protein and fiber products.

Our more recent investments include Air Protein and Future Meat Technologies.

How are you working with these companies as a strategic investor?

Well, all of these companies are using a form of fermentation to get to their end results, and ADM has been leveraging fermentation to create products for years, so we know a thing or two about fermentation. We've got very deep technical understanding, and we've also got pilot assets and large-scale assets that these companies don't. So, there is an opportunity to help them get to market in a low-capex way.

The agrifood industry has this reputation for being slow to develop and adopt new technology. How do you see corporate venture funds playing a role in shifting that narrative?

When you compare the ag industry to, say, the tech industry, the ag industry has to do a lot of things to catch up. But what we've seen is, there's been so much more advancement in agriculture in the last five years than in the last 50 years.

If you're a company leveraging CRISPR to improve crop yields or resistance to pesticides, you don't get results overnight. You try one field plot, then you have to wait a year to do more testing, then you wait again to test in larger field plots to make sure that whatever developing really works. And then, you have to find a whole chain of people in the value stream to enable it to work. It takes time.

On the corporate venture side, you need to bring on people who are naturally curious about possibility. This is how you change the paradigm that exists.

BASF VENTURE CAPITAL
PORTFOLIO SNAPSHOT

BASF Venture Capital launched in 2001 and has made €12.7 million in direct investments in agrifood companies.

Five of its ag-investments have been made since 2015. Three others—Advanced BioNutrition Corp., Allyix and Arcadia Biosciences—were made before 2015 (they are not included in the group data.) Two other BASF Venture deals, Lactips and P2 Science, are related to the agrifood sector and have been added to this dataset.*

BASF Venture capital has also invested in three agrifood funds: SP Ventures, which focuses on Latin America; Omnivore, which focuses on India; and Alchemist.

PROVIVI

$212.2M

2013 • Santa Monica, CA

Developer of agricultural pest control formulations designed to protect food supplies without toxic residues.

Equinom

$18.3M

2012 • Kibbutz, Israel

Seed breeding technology designed to breed future foods and bringing sustainable development to the food industry.

Hummingbird Technologies

$14.7M

2016 • London, United Kingdom

Data analytics platform designed to aid in cropping and farming decision-making.

**Dollar amount is total raised as noted in Pitchbook.*

COMPANY	LOCATION	TECH CATEGORY	YEAR OF INVESTMENT
EcoRobotix	China	Robotics & Mech. Farm Equipment	2018
EQUInom	Israel	Ag Biotechnology	2019
Hummingbird Technologies	UK	Farm Mgmt. Software, Sensing & IoT	2019
Provivi	US	Ag Biotechnology	2017, 2019
SmartAHC	China	Farm Mgmt. Software, Sensing & IoT	2020
Lactips*	*France*	*Bioenergy & Bio-Materials*	*2018*
P2 Science*	*US*	*Bioenergy & Bio-Materials*	*2017*

AGTECH CVC: BASF VENTURE CAPITAL

BASF Venture Capital on 'catalyzing change for the chemicals industry'

Markus Solibieda
Managing Director
BASF Ventures

Like its peers (and competitors) Bayer and Syngenta, German chemicals giant BASF knows that 'business as usual' in the agrifood sector isn't going to cut it. BASF has been turning its vast Agricultural Solutions division toward new techniques and business models for delivering services like crop protection.

BASF Venture Capital's Markus Solibieda discusses the group's evolving strategy and global perspective from its teams around the world.

What is the mission and scope of BASF Venture Capital?

Markus Solibieda: We have a mission statement, that is "catalyzing change for BASF and the chemicals industry." We are not a pure digital farming or agtech investor; we venture across all areas of interest for BASF including crop protection, base chemicals, intermediates, specialty chemicals, and so on. But agriculture is an important part of our mission, because we are convinced that the agricultural space is where the use and application of chemicals will change most in the next five years.

We are a typical Series A investor, with a team of 13 colleagues investing an evergreen fund of $250 million. We invest in tickets of $1 million to $5 million.

Can you give us a snapshot of what's in BASF's agri-focused venture portfolio?

The most recent investment we made is in an Israeli company called Equinom. They have built a bioinformatics platform to generate new and non-GMO characteristics of plants. For example, they have helped develop for the French producer Roquette a new white pea breed that has a very high protein content.

Swiss company Ecorobotix has developed a robot to selectively spray crops, like onions or sugar beets. Spraying herbicides or insecticides on the whole field is still the standard in crop protection. Ecorobotix has developed a solar-powered robot on four wheels [whose] cameras can detect and distinguish specific value crops from herbicides, deciding where to spray and where not to. That opens the door to using less and more sustainable crop protection products.

And then [there's] Provivi, which has developed a new class of pheromones. Provivi wants to bring pheromones to row crops like

corn and use pheromones in larger fields. One of the founders, professor Frances Arnold, won the Nobel Prize for her research.

BASF's CVC investment strategy has focused both on direct investments and investments in agrifoodtech funds, like Omnivore in India and SP Ventures in Brazil. Why take both approaches?

If you want to gain quick access to deal flow, if you want to build your presence and create an overview of what's happening out there, being an investor in another venture capital fund can really help in an accelerated way.

Why invest in chemicals reduction when BASF has traditionally been one of the biggest sellers of agri-chemicals?

As a corporate venture unit, we are not executing on existing BASF strategies; we try to inspire our existing business units on new trends, new technologies, new business models. We are the risk-takers. So we are the ones who test these new business models, and if we fail, it's our fault. But if we are successful, we convince our business units to build these new business models. We try to be a source of inspiration for BASF, which today, of course, still has a business model based on volumes.

But we are confident that with the help of phenomenal startups, we can test certain theses and understand new market mechanics better. That's why we are doing these kinds of investments: to try to build intelligence for our group and feed into the future strategy of BASF. There's a high level of interest from the business units to work with us and to generate these learnings.

Hypothetically speaking, if a new startup pitched you today, what problem would they ideally be trying to solve?

We are in a period where consumers are much more sensitive to where their products come from. Is it organic? Has it been sprayed with a conventional insecticide? There will also be additional regulatory challenges—or put in a positive way, improvements—to the agri-chemicals industry. It would be useful to have a startup that is able to help crop protection companies' clients — the farmers, for example — with verification to prove how crops have been grown: that this is organic, or that has been grown with fewer herbicides. I don't know if it will be a blockchain solution or another digital solution, but a solution to make the agricultural industry value chain transparent would be highly interesting.

Are there any big changes on the horizon for BASF's corporate venture group over the next two years or so?

These last four years are already quite different compared to 2001 to 2016. We have really changed the mandate and the geographies where we are present. We are no longer just a technology scout for BASF.

In the future, I would like to see that all business units of BASF feel encouraged to engage even more with startups – to the point that, one day, we are no longer needed as a facilitator of these relationships. Here we are already making a lot of progress, and we will continue to push, to inspire, and to catalyze change.

CARGILL
PORTFOLIO SNAPSHOT

Cargill stands out among the CVC group profiled, as it does not have a dedicated venture capital arm; all of its venture investments are made by its four separate business units, and governed by a central corporate team.

This makes Cargill's activity unique, but also difficult to track. It is possible that some investment data is missing from this dataset.

Cargill has been active in the Innovative Food category, backing three alternative protein companies: cellular ag groups Aleph Farms and Memphis Meats, and pea protein supplier Puris. It will be an interesting space to watch over the next 12-18 months as cultivated meat products ready their market debuts after a decade or more of R&D.

Memphis Meats

$208.2M

2015 • San Leandro, CA

Producer and seller of real meat products intended to bring delicious and healthy meat to the table by harvesting it from cells, instead of animals.

Aleph Farms

$14.5M

2017 • Rehovot, Israel

Producer of clean meat products intended to provide authentic meat in a sustainable and cruelty-free way.

Cainthus

2015 • Dublin, Ireland

Software monitors the health and well-being of crops and livestock, providing the information to make better decisions, solving problems before they occur by using predictive imaging analysis.

**Dollar amount is total raised as noted in Pitchbook.*

COMPANY	LOCATION	TECH CATEGORY	YEAR OF INVESTMENT
Aleph Farms	Israel	Innovative Food	2019
Cainthus	Ireland	Farm Management Software, Sensing & IoT	2018
Calysta Energy	US	Ag Biotechnology	2016, 2017
Memphis Meats	US	Innovative Food	2020
Puris Proteins	US	Innovative Food	2018, 2019

AGTECH CVC: CARGILL

Agrifood industry's reluctant digital shift

SriRaj Kantamneni
Managing Director of Digital Insights
Cargill

US agrifood giant Cargill isn't new to the corporate venture capital game. But its style is unlike most of its peers. The Minnesota-based company leans into the expertise and experience of the teams running its four business lines to make external investment and partnership decisions.

SriRaj Kantamneni, managing director of digital insights in Cargill's Animal Nutrition & Health (ANH) group, discusses his group's investment activities as one part of Cargill's venture investing.

Talk us through how you think about opportunities in agrifood technology?

SriRaj Kantamneni: We start with identifying the unique jobs to be done or problems to solve, then look at the landscape of companies that are addressing those challenges. Cargill's mission is to be the global leader in nourishing people, and we want to do that in a safe, responsible, and sustainable way. With that in mind, we ask ourselves: what are the big industry trends that could accelerate this mission?

Digitization is one, and that's where I spend my time. There's really two parts to digital: productivity—how do you improve what's happening on the farm—and tracking and tracing whether you're getting the outcomes you want from a nutrition and formulation standpoint.

With farm management practices, it's about how the digital solutions and investments we're making improve those practices, because ultimately those improvements lead to greater sustainability, efficiency, and efficacy.

On the nutrition side, the extent that we can measure and monitor helps us start to address sustainability and consumer preferences.

Share a bit about some the startup investments and partnerships the AHN group has pursued.

We invested in Cainthus, which is bringing computer vision to the dairy industry. When we invested there were specific challenges in dairies that we wanted to solve. One was expanding the understanding of what's happening with each individual animal or in each pen to the entire operation. There is obvious research that indicates that the more a cow is ruminating the better milk productivity she has. Knowing when feed is gone in front of a particular pen, for instance, and triggering alerts for the farm manager is beneficial to this process.

There are now so many productivity tools out there. How do you help the entrepreneurs you are supporting think about scaling their tools and integrating them with others?

One of the areas we are acutely aware of is the role that Cargill plays in helping bring technology capabilities together. If you think about an ecosystem, many of these startups won't be able to do that on a standalone basis. But we can help facilitate that. We've got industry knowledge and we have a massive distribution channel and network to help startups scale.

For most technologies, we find that it's better to get involved once the technology itself is somewhat proven and then helping the startup refine what it does to scale in the key markets where that technology could have an impact.

Has this strategy grown as the agrifood startup ecosystem has grown in recent years?

Cargill is a 155-year-old company. To be relevant, you evolve with what's happening in the market. Cargill was at one time in shipbuilding—most people wouldn't know that.

We really started doing early-stage agricultural technology investments in earnest, four or five years ago. Before that, we were a company that waited for something to scale and then we acquired it.

For early-stage investments, we're finding that it's working. It's bringing some interesting things into the house of ANH. Covid-19 has only accelerated that. If you look at history, every large economic disruption germinates innovation.

Can you share some of the innovation you've seen emerge from the pandemic's impacts?

Our Cargill Protein & Salt and Food Ingredients & Bio-industrial colleagues cover food service, retail and e-commerce. Retail has transformed dramatically over the last eight months, with the emergence of click and collect; food service though, has been decimated, and we are working with our customers to support them through this difficult time. Those realities have forced us to think about things differently.

Food security is another example. The resilience of food supply-chains is pretty remarkable. While there were some scares early on [in the pandemic], there weren't any major disruptions that created panic. But labor challenges on the farm or in processing facilities are heightened. Leveraging technology to alleviate labor challenges has only accelerated.

Why, in such an essential industry, is the uptake of tools that improve the efficiency and resilience of supply chains so slow?

The essential aspect of food makes the industry less volatile than other industries. For that reason, I think both producers and the industry are slow to disrupt too many things.

I do think we're going to see some tremendous change over the next three to five years. We're cognizant that in a big company like Cargill, there are startups out there that we don't know about that are waking up every day thinking about this. Sometimes having disruption forced upon the industry is a good thing.

FMC VENTURES
PORTFOLIO SNAPSHOT

FMC Ventures launched in 2020 as FMC's new venture capital investment arm. The group invests from the company's balance sheet, and like other CVCs in the space, takes a long-term investment view. It closed four deals in 2020.

MC Ventures' portfolio is, so far, quite concentrated in the Ag Biotech sector. It is interested in identifying new "modes of action" to improve crop treatments and plant health. Trace Genomics is mapping the nutritional and microbial contents of soil. Cyclica is a drug discovery platform investigating molecules. Zymergen is a machine-learning and AI-based biotech startup.

Also in the portfolio: aerial surveillance venture Kiwi Technologies.

Zymergen

$1.0B

2013 • Emeryville, CA

Molecular technology intended to discover and deliver novel products and materials.

Trace Gnomics

$58.9M

2015 • Burlingame, CA

Developer of an analytics engine that learns as it maps the living soil designed to help agricultural industry professionals including agronomists and growers maximize the value of every acre.

Kiwi Technologies

$6.0M

2017 • Malden, MA

Developer of an unmanned aerial vehicle paired with a custom-designed ground support platform designed to deliver the standard volumes of chemicals and seeds that are needed by commercial farms.

**Dollar amount is total raised as noted in Pitchbook.*

COMPANY	LOCATION	TECH CATEGORY	YEAR OF INVESTMENT
Kiwi Technologies	US	Farm Management Software, Sensing & IoT	2020
Trace Genomics	US	Ag Biotechnology	2020
Cyclica	Canada	Ag Biotechnology	2020
Zymergen	US	Ag Biotechnology	2020

AGTECH CVC: FMC VENTURES

FMC Ventures on launching a corporate venture group in 2020

Amar Singh
Managing Director
FMC Ventures

Philadelphia-based FMC Corporation has been in the agri-chemicals game for nearly 140 years. It has been in the venture investing business for less than one.

FMC Ventures' Amar Singh discusses the advantages and challenges of being the newcomer in agrifood corporate venture investing, and how FMC's laser-focus on crop protection technologies gives the company an edge in a still under-invested space.

FMC Ventures only began investing last year. Give us the high-level overview of the team, fund and what you're looking for.

Amar Singh: Our mission is to opportunistically back emerging technologies that can create strategic advantages for FMC. FMC today is very different than it was four years ago. Leadership has tasked the ventures group with focusing on emerging technologies that could radically augment or alter how agri-science products are developed, sold and applied.

We are inquiring about different and sustainable ways to nourish and protect crops and evaluating technologies with a very open mind.

We are also closely evaluating emerging business models that could alter how products are purchased and applied, and by extension, how and where value is captured in the value chain.

It takes a multidisciplinary approach to attack these problems. The best opportunities today are at the intersection of several different domains, such as molecular biology, computational chemistry, machine learning, and robotics.

A lot of new startups are trying to reduce the use of synthetic chemicals in agriculture. Do you see the use of chemicals coming to an end soon?

I may be a minority opinion among my investing friends, but I think 'coming to an end' is unrealistic for the foreseeable future. Almost everyone raising crops today could tell you that, so I wouldn't paint with a broad brush. There are excellent synthetic products with unmatched control and sustainable environmental profiles. But what gets attention–and rightfully so–are the ones with severe negative consequences.

Now, looking forward, we think there will be a good mix of both synthetic and non-synthetic

products. Technologies that help us do more with less, whether that's on the formulation side to reduce the amount of active ingredient or using robotics for precision application. We will see more judicious use of certain products.

For bio-pesticides, there are different modalities, and the question is: can they be scaled? Can they provide similar, if not identical, levels of control?

What is driving the shift to replace or reduce the use of synthetic chemicals?

One of the key drivers is that consumers are voting with their dollars and it is causing a ripple effect throughout the value chain. Grocers, aggregators, processors, mid-stream actors, producers, and crop-input companies are reacting to seize the opportunities emerging from these changing preferences.

There's the natural evolution of technology as well, as you say.

Tell us about the companies you've invested in and how they're supporting FMC Ventures' mission.

We have made four investments so far; two have been publicly announced. We also have seven or eight in the pipeline under review.

The two unannounced ones are in pheromone space and pathogen detection space.

Our first investment, in June, was Trace Genomics. Trace is a soil bio-informatics company that uses shotgun sequencing and machine learning to decode the microbial diversity of soil.

We think soil biology as a category is under-studied. This is largely because the tools required to analyze and understand soil's complex biology were until now unavailable or very expensive. What Trace did, by marrying sequencing with advanced computing, is make it possible to explain the complexity and diversity of all these microorganisms living in soil.

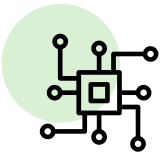
The second is Kiwi Technologies, which is building an unmanned aerial sprayer here in the US. Today, aerial spraying in the US is an unscalable and highly fragmented business fraught with tactical and safety issues. Kiwi's breakthrough is that they redesigned the spraying vehicle from the ground up, to drive down material costs and to regulate the quantum of spray.

The agtech venture capital space has evolved a lot in the past few years. What are the advantages and challenges to launching a corporate venture investing group today?

I think the jury is still out on many of the early bets, especially in certain sub-sectors. We do get the benefit of learning from others, i.e. what worked and what didn't, so I think there are advantages in being patient.

With respect to challenges, established companies are relatively slower than a startup, it's like maneuvering a ship versus a speed boat. We are less than a year in and have a game-plan, the leadership team is energized, and we've placed a few strategic bets and more to come.

Lastly, if we look at the breakthroughs in molecular biology, robotics, computational chemistry, and novel ways of linking demand to supply, I think the best opportunities are ahead of us.



LEAPS BY BAYER
PORTFOLIO SNAPSHOT

Bayer acquired agri-chemicals rival Monsanto in 2018, and with the acquisition, absorbed Monsanto's venture portfolio. Now called 'Leaps by Bayer,' the group has invested roughly $200 million in agrifood ventures since 2015.

Leaps has also re-invested in two Monsanto investments: CoverCress, Newleaf.

Ag Biotech dominates Leaps' portfolio, including one of its latest editions: Unfold, a biotech venture focusing on seed varietals for indoor farming.

Leaps co-launched the venture in 2020 with Singapore-based Temasek, and invested $30 million.

Leaps also has one of the most geographically diverse portfolio of the CVCs profiled in this report, including two investments in Latin America and the only Africa-based venture in the group, Apollo Agriculture.

Atomwise
$174.3M
2012 • San Francisco, CA
Artificial intelligence-based biotechnology company intended to help invent new potential medicines for disease targets.

Grão Direto
$47.7M
2016 • Uberaba MG, Brazil
Platform designed to digitize the agricultural commodity chain and guide farmers and buyers to market in an efficient and modern way.

Climate Fieldview (Formally HydroBio)
$3.6M
1999 • Denver, CO
Decision support technologies intended to conserve water and maximize crop yields.

**Dollar amount is total raised as noted in Pitchbook.*

COMPANY	LOCATION	TECH CATEGORY	YEAR OF INVESTMENT
AgBiome	US	Ag biotechnology	2015, 2018
Apollo Agriculture	Kenya	Misc.	2020
Atomwise	US	Ag Biotechnology	2018
Bioceres S.A.	Argentina	Ag Biotechnology	2016
Blue River Technology (exited)	US	Robotics & Mech. Farm Equipment	2015
Boragen	US	Ag Biotechnology	2017
CoverCress	US	AgBiotechnology	2015, 2017, 2018, 2020
FarmLead	Canada	Agribusiness Marketplaces	2017
Grão Direto	Brazil	Agribusiness Marketplaces	2018
HydroBio (exited)	US	Farm Management Software, Sensing & IoT	2015
Joyn Bio	US	Ag Biotechnology	2017
Newleaf Symbiotics	US	Ag Biotechnology	2017, 2020
Oerth Bio	US	Ag Biotechnology	2020
Pairwise Plants	US	Ag Biotechnology	2018
Pivot Bio	US	Ag Biotechnology	2016
PlantResponse Biotech	Spain	Ag Biotechnology	2015, 2018
Rantizo	US	Robotics & Mech. Farm Equipment	2020
Resson	Canada	Farm Management Software, Sensing & IoT	2016, 2018
Understory	US	Farm Management Software, Sensing & IoT	2016
Unfold	US	Ag Biotechnology	2020
VitalFields (exited)	Estonia	Farm Management Software, Sensing & IoT	2015

AGTECH CVC: LEAPS BY BAYER

Leaps by Bayer on adopting an impact lens for corporate venturing

Derek Norman
Vice President, Venture Investments
Leaps by Bayer

German agri-chemicals giant Bayer made headlines in 2018 for acquiring US rival Monsanto for a whopping $63 billion. The merger has left rival corporates and budding startups curious about what the new entity's corporate venture activities would look like (among many other questions). Monsanto Growth Ventures already had a sizeable portfolio, which has since been folded into the umbrella of Leaps by Bayer, Bayer's innovation department.

Leaps' head of agriculture Derek Norman discusses what to expect from Bayer's venture investing ambitions.

What do you see as Leaps by Bayer's mission as a corporate venture arm?

Derek Norman: Our mission is to catalyze breakthrough innovations through a process of active incubation, and by [allocating capital to] create or invest in new companies. We are focused on what we call paradigm-shifting technologies that will have a significant "impact on, and returns for, humanity.

We've always been defined as an impact investor, so our investments not only target breakthrough technologies, but also specific challenges that would have a positive impact on society and humanity. We very much screen for that when we're looking at investment opportunities.

How do you define your approach to impact?

There are many ways to define impact and there's no one approach that fits every investor. The way we approach impact is through what we call the '10 Leaps'–these are 10 specific challenges facing humanity that we believe would have a positive impact if solved. As we're both a healthcare and an agricultural company, not all 'Leaps' are related to agriculture.

We have one Leap [that aims to] to reduce the environmental impact of agriculture. We have another to develop a sustainable protein supply. We have several that overlap with both healthcare and agriculture: 'driving digital business models,' 'eradicating insect-borne infections,' and 'curing through microbiome health.'

Why is it important to promote chemicals reduction, if Bayer is also a high-volumes seller?

New technologies [for] crop protection are going to come whether or not we invest in them; it's just a different way of doing the job of controlling weeds or pests. What we need to figure out is a new business model that is able to grow these technologies at scale. These technologies could actually then be an area of future growth for Bayer.

Co-founding entire companies outright, as you did in 2020 with the company Unfold, differs from many corporate VC initiatives. Why is Bayer taking this approach?

We're looking at [questions like], 'What's the Leap? What technology is needed? Who are the potential partners?' And does that require founding a new company, or is there a great company already out there that can help solve some of these challenges that we can invest in?

We get very involved in the co-founding process – helping to build out the management team, helping to define the brand and strategy of the company. There are a lot of Bayer in-kind resources that are given to these companies to help them get a jumpstart on developing the technology, such as Bayer expertise and know-how.

Could you highlight an example in your current portfolio of a company addressing a 'Leap'?

I always like to mention CoverCress. CoverCress was an investment made by the Monsanto Growth Ventures team, but it fits what we're about at Leaps. They're converting a wild crop called pennycress into a commercial cover crop for growers in the winter. It improves soil health, and it is also a cash crop: the grains or the seed can be used as animal feed and the oils can be used for biodiesel.

CoverCress is a breakthrough. They're taking a plant that's never been farmed and creating a completely new commercial crop that would have a major positive environmental impact. There is so much attention being paid to agriculture and carbon credits, and cover crops like this can really help to significantly reduce net carbon emissions.

If these companies make 'the leap' to success, what happens then?

At the outset of an investment, we have a very straightforward strategic lens for our investments: we try to hypothetically determine whether Bayer would buy the company if it's successful. It's a simple question to ask, but hard to answer, because you're asking: 'What will this technology actually look like versus the future strategic plan of Bayer?' But that's really the question we're trying to answer here.

Like many corporate venture investors, we see an acquisition by Bayer as the best outcome. It's a validation of the financial return on investment. But it is also the strategic return, which is that we've helped create and develop a company whose technology or products can then have a meaningful impact for Bayer, as well as that 'return on humanity' that we're looking for. That's the ultimate goal of what we are trying to accomplish at Leaps by Bayer. Of course, if there's a buyer that's willing to pay the market price, that's also a great outcome and provides the necessary financial return on investment [required] to manage any corporate venture group.

SYNGENTA VENTURES
PORTFOLIO SNAPSHOT

Launched in 2009 as agri-chemical giant Syngenta's venture investing arm, Syngenta Ventures has the biggest portfolio of all the CVCs profiled in this report. It has invested in 25 companies since 2015 (the scope of this research). Syngenta Ventures does not disclose how much it has invested.

Two of its exits have been publicly disclosed: Blue River Technology, a 2015 investment that it exited to John Deere in 2017; and Marrone Bio Innovations, a 2011 investment that has since gone public.

Its current portfolio also includes US-based biotech venture Metabolon, which was Syngenta Ventures first direct investment, made in 2009.

Ag Biotech dominates Syngenta Ventures' portfolio. Syngenta Ventures has a similarly geographically diverse portfolio to Leaps by Bayer, including two investments each in Argentina and India, one in Turkey, and three in agrifood tech hub Israel.

Vestaron

$104.7M

2005 • Durham, NC

Developer of peptide-based biopesticides intended to improve the safety, efficacy and sustainability of crop protection.

Sound Agriculture

$37.4M

2013 • Emeryville, CA

Provider of hydraulic enhancement products for crops designed to improve harvest yields and water use efficiency across a variety of crops.

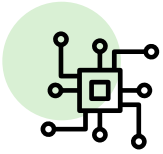
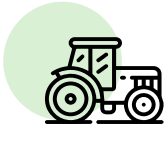
Tarfin

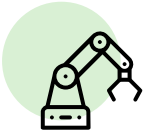
$6.3M

2016 • Istanbul, Turkey

Developer of a digital platform designed to provide farm inputs with competitive credit terms.

**Dollar amount is total raised as noted in Pitchbook.*



COMPANY	LOCATION	TECH CATEGORY	YEAR OF INVESTMENT
AgBiome	US	Ag Biotechnology	2015
Agrimetis	US	Ag Biotechnology	2015, 2017
Agrivida	US	Ag Biotechnology	2019
Agrofy	Argentina	Agribusiness Marketplaces	2019
Biognosys	Switzerland	Ag Biotechnology	-
BioPhero	Denmark	Ag biotechnology	2018
Blue River Technology (exited)	US	Robotics & Mechanization Farm Equipment	2015
Bomill	Sweden	Midstream	-
Boragen	US	Ag Biotechnology	2017
Farmlink	India	Agribusiness Marketplaces	2017
Green-eye Technology	Israel	Robotics & Mechanization Farm Equipment	2020
Greenlight Biosciences	US	Ag Biotechnology	2015,2020
Illumitex	US	Robotics & Mechanization Farm Equipment	2015
Ninjacart	India	Agribusiness Marketplaces	2018
Phytech	Israel	Farm Management Software, Sensing & IoT	2015, 2017, 2020
Planet	US	Farm Management Software, Sensing & IoT	-
PowerPollen	US	Ag Biotechnology	-
PrecisionHawk	US	Farm Management Software, Sensing & IoT	2018
Premier Crop Systems	US	Farm Management Software, Sensing & IoT	2017
S4	Argentina	Farm Management Software, Sensing & IoT	2016, 2017
Sound Agriculture	US	Ag Biotechnology	2017, 2019, 2020
Stable	UK	Misc.	2019
Tarfin	Turkey	Misc.	2020
Vestaron Corporation	US	Ag Biotechnology	2019
WeedOut Ltd.	Israel	Ag Biotechnology	2019, 2020

AGTECH CVC: SYNGENTA VENTURES

ChemChinabusiness model innovation & 'agri-fintech'

Shubhang Shankar
Managing Director
Syngenta Ventures

Syngenta Ventures launched in 2009 as one of the earliest corporate VC initiatives dedicated to agriculture. Today, the Basel-based group takes what it calls a 'stage agnostic' approach, investing in seed rounds and late-stage equity rounds alike.

Syngenta Ventures' managing director Shubang Shankar discusses the venture group's views on opportunities in today's fast-changing and innovating agrifoodtech space.

Syngenta has been an early and eager mover in agtech corporate VC. How would you define your investment approach?

Shubhang Shankar: Management has long been aware that going forward, a lot of innovation will come from digital technologies or technologies that sit outside our core research and development innovation engine. The idea was to use venturing as a vehicle to understand what's out there in the near and medium-term, and how can we incorporate that into our growth strategy.

Syngenta Ventures has a two-pronged role. One is accessing R&D and technologies that either give us access to products that we can commercialize or make our internal operations more efficient. The other–which we've started doing recently–is to make investments to support the creation of an ecosystem in key markets that can drive demand for our products.

What do you see as the investment mandate of Syngenta?

We see our mission as supporting promising startups that are creating the future agrifood system of the world. Our mandate is to invest in technologies, in business model innovation, in anything that makes farmers lives' easier and makes farming more economically remunerative and sustainable for them.

How has the culture and approach of Syngenta's venturing arm been affected by ChemChina's acquisition?

The ChemChina transaction has had a positive impact on Syngenta Ventures and it reinforces its importance. The Chinese market is a significant growing market with an intriguing and fast-developing startup ecosystem. Similarly, we now have better insight into the Chinese market, which is of interest for many startups as they look to expand into new geographies.

What are the promising tech trends in the agrifood sector that you're most excited about?

Firstly, I'm very excited about the prospect of agri-fintech in emerging markets and for smallholder farmers. Smallholder farmers face well-known challenges around access to credit, which hinders them from using high-quality inputs, [which means] they have low productivity and low incomes. This further hinders their access to credit. Smallholder farmers are thus caught in a vicious circle of under-investment and low returns.

Credit is one way of breaking that circle. I think there is a lot of potential to use technology and business model innovation to solve a really, really big global problem. It is one of the reasons why we made our recent investment in Tarfin, which is an agri-fintech lending company with operations in Turkey. If you move lending for farmers away from the traditional model of "lend against collateral" to "lend against the ability to pay," then it would drive significant value.

The second is anything to do with robotics in agriculture. Agriculture has a well-known and intensifying crisis of labor availability, especially in segments like harvesting. I expect those challenges to [continue]; there will be a strong demand for robotics and further automation in farming operations.

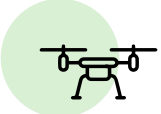
The third segment is the application of artificial intelligence (AI) and machine learning-driven techniques for the discovery and commercialization of materials. Look at Zymergen. There is this belief that you can automate a lot of the traditional trial-and-error processes that drove R&D using new AI techniques. We've seen those models being explored very strongly in pharma, and at some point, they will trickle down into agriculture as well.

Aside from Tarfin, what other Syngenta portfolio companies stand out to you in their bid to advance the agrifood sector?

A recent investment we announced is a company called Greeneye, which is developing a machine vision-enabled smart spraying kit. The aim is to enable precision spraying of crop protection chemicals. What Greeneye is doing is developing a kit that will allow sprayers to "recognize" and spray weeds in real-time.

We made this investment last year, ahead of the recent EU announcement of plans to reduce the use of chemicals on farms by up to 50% by 2030. This is the kind of technology required to achieve some of the goals like what the EU has set. I think everybody in the industry knows that we need to move away from a broadcast spraying approach and head towards more judicious use of chemicals. So Greeneye is a great example of the convergence of a political regulatory trend and a technology trend.

Through a business model innovation lens, Ninjacart has created supply-chain and market linkages for smallholder farmers in India. Farmers in India have structural constraints that stop them from getting direct access to markets and getting good prices [for their goods]. As I mentioned, this constrains their ability to reinvest in operations. What Ninjacart is doing is creating the supply chain infrastructure to connect farmers with markets and aiming to do that on a scale of 150 million smallholder farmers! That's an immense challenge.



CVC SNAPSHOT OVER THE YEARS (2015-2020):

All data displayed in the following slides is associated with the ten CVC's highlighted below:

TOP 10 AGTECH CVC INVESTORS

SYNGENTA VENTURES

LEAPS BY BAYER

CAVALLO VENTURES

DESJARDINS CAPITAL

GV

ALEXANDRIA VENTURE INVESTMENTS

YAMAHA MOTOR VENTURES

QUALCOMM VENTURES

CONTINENTAL GRAIN COMPANY

TEKFEN VENTURES

TOP 5 INVESTMENTS
(BASED ON CAPITAL RAISED)

FARMER'S BUSINESS NETWORK
Founded: 2014
Raised: $629.3M

PRECISION BIOSCIENCES
Founded: 2006
Raised: $421.0M

PLANET
Founded: 2010
Raised: $386.0M

DNANEXUS
Founded: 2014
Raised: $327.7M

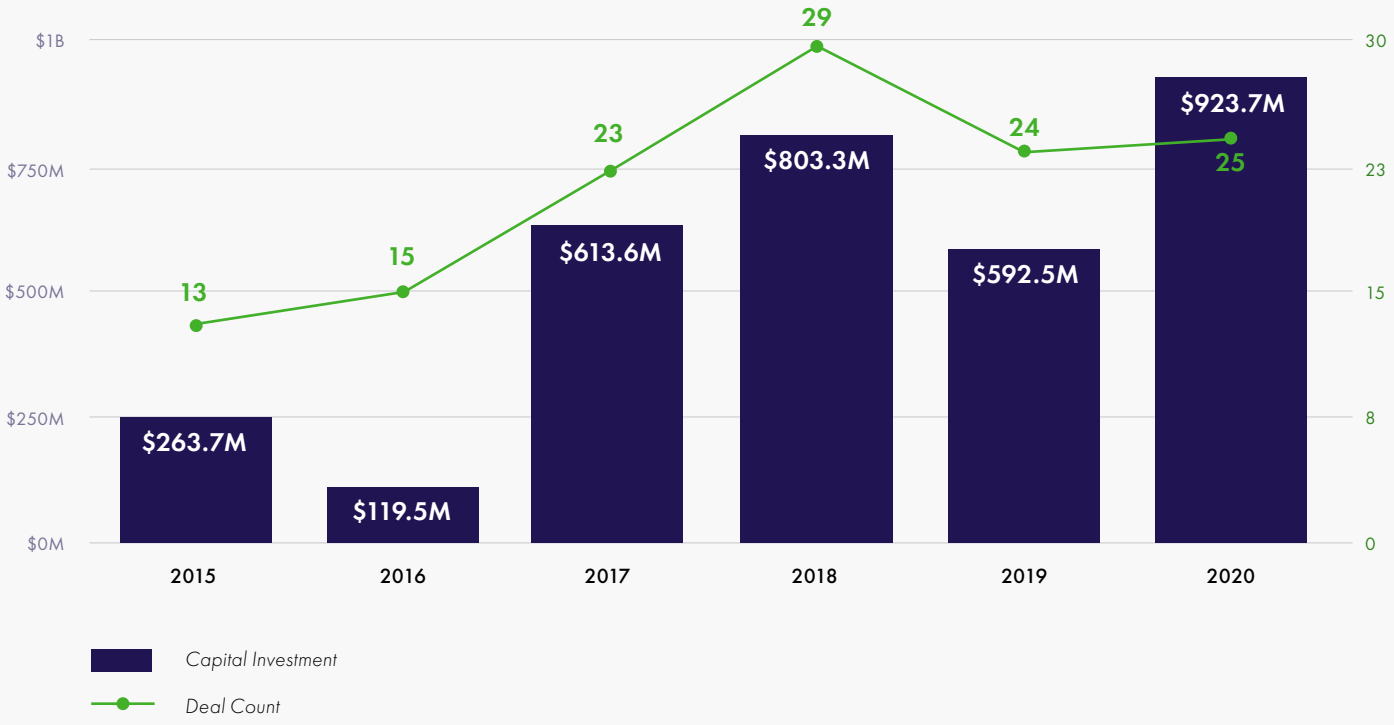
BENSON HILL
Founded 2012
Raised: $302.0M

Source: PitchBook Data, Inc. according to PitchBook's analyst-curated vertical noted as AgTech and filtered by 'CVC' and select 'Strategic Acquirers.' Based on AgTech investments.

AGTECH CVC SNAPSHOT (2015-2020):

CAPITAL INVESTED & DEAL COUNT

All data displayed in the following slides is associated with the ten CVC's highlighted in the previous page.



INVESTMENTS BY STAGE

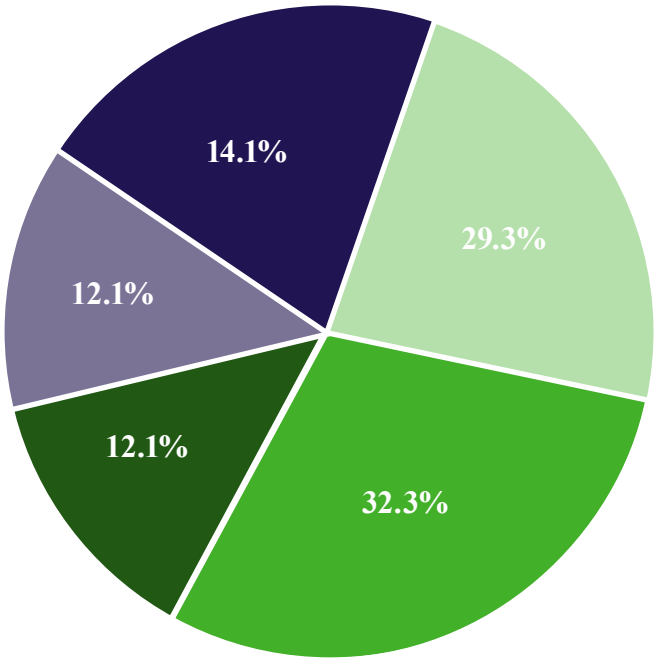
Seed
12 Deal Count; $45.0M Capital Invested

Series A
32 Deal Count; $333.0M Capital Invested

Series B
29 Deal Count; $871.9M Capital Invested

Series C
14 Deal Count; $795.8M Capital Invested

Series D or Later
12 Deal Count; $1.1B Capital Invested



Source: PitchBook Data, Inc. according to PitchBook's analyst-curated vertical noted as AgTech and filtered by 'CVC' and select 'Strategic Acquirers.' Based on AgTech investments.

AGRICULTURE **CVC INSIGHTS REPORT**

gener8tor, in partnership with The Combine and the Nebraska Department of Economic Development, will host the OnRamp Agriculture Conference bringing together the agriculture and food industries' leading corporations, investors and startups. The conference highlights innovations disrupting agriculture and the future of food, the leaders making such innovations possible and how new technologies and business models will reinvent the industry.

onrampagricultureconference.com

AgFunder is one of the world's most active foodtech and agtech VCs. We're rethinking venture capital for the 21st century. We were born online, and with our publication AFN we've built a global ecosystem of 85,000+ 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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