



EMERGING TECH RESEARCH

Agtech Report

VC trends and emerging opportunities

Q3
2023

REPORT PREVIEW

The full report is available through the PitchBook Platform.





Contents

Vertical update	3
Q3 2023 timeline	5
Agtech landscape	6
Agtech VC ecosystem market map	7
VC activity	9
Emerging opportunities	26
Biopesticides	27
Agroforestry-enablement technologies	30
Select company highlights	36
Solugen	37
Atlas Agro	39

What else would you like to see in this report?

Send your ideas to alex.frederick@pitchbook.com. We look forward to hearing from you.

We are adding PitchBook Exit Predictor probabilities to our Emerging Technology Research reports. PitchBook’s proprietary [VC Exit Predictor](#) estimates the probability that a startup, or VC-backed company, will successfully IPO, be acquired, or merge. The tool is available exclusively to PitchBook subscribers.

We have launched a pre-seed report methodology to more accurately and comprehensively capture deals from the earliest phase of venture. Going forward we will sunset “angel” as a specified stage of venture in all of PitchBook’s venture-focused reports.

Institutional Research Group

Analysis



Alex Frederick Senior Analyst, Emerging Technology
alex.frederick@pitchbook.com
pbinstitutionalresearch@pitchbook.com

Data

TJ Mei Data Analyst

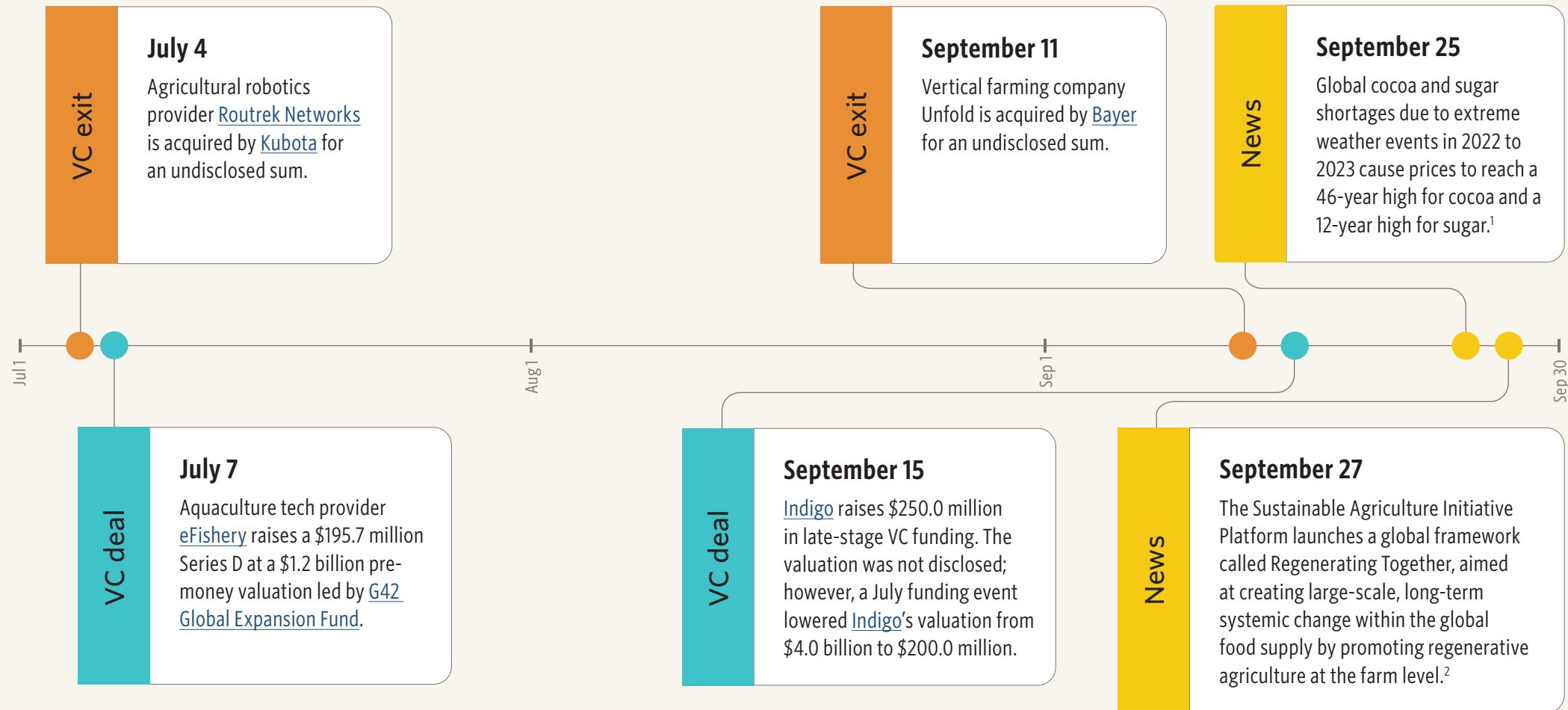
Publishing

Report designed by **Julia Midkiff**

Published November 9, 2023



Q3 2023 timeline



1: "Cocoa, Sugar Markets in a Not-So-Sweet Situation," Food Business News, Crystal Futrell, September 25, 2023.

2: "World's Leading FMCG Companies Commit to New Global Framework for Regenerative Agriculture Practices," SAI Platform, September 27, 2023.

Q3 VC deal count summary

177

total deal count

-22.7%

QoQ deal count growth

\$2.0B

total VC raised

19.1%

QoQ deal value growth

TTM summary

929

total deal count

-26.3%

YoY deal value growth

\$8.1B

total VC raised

-32.9%

YTD growth



-
- The illustration is divided into two main sections. The left section, representing the farm, includes a barn with two cows, a field with a tractor, a drone, and a building with a red '5'. The right section, representing the laboratory, includes a desk with a laptop and '2', a desk with a microscope and '1', a desk with a laptop and '3', and a desk with a monitor and '4'. The bottom right shows a plant growth rack with '3'.



Agtech VC ecosystem market map

Click to view the interactive market map on the PitchBook Platform.

Market map is a representative overview of venture-backed or growth-stage providers in each segment. Companies listed have received venture capital or other notable private investments.

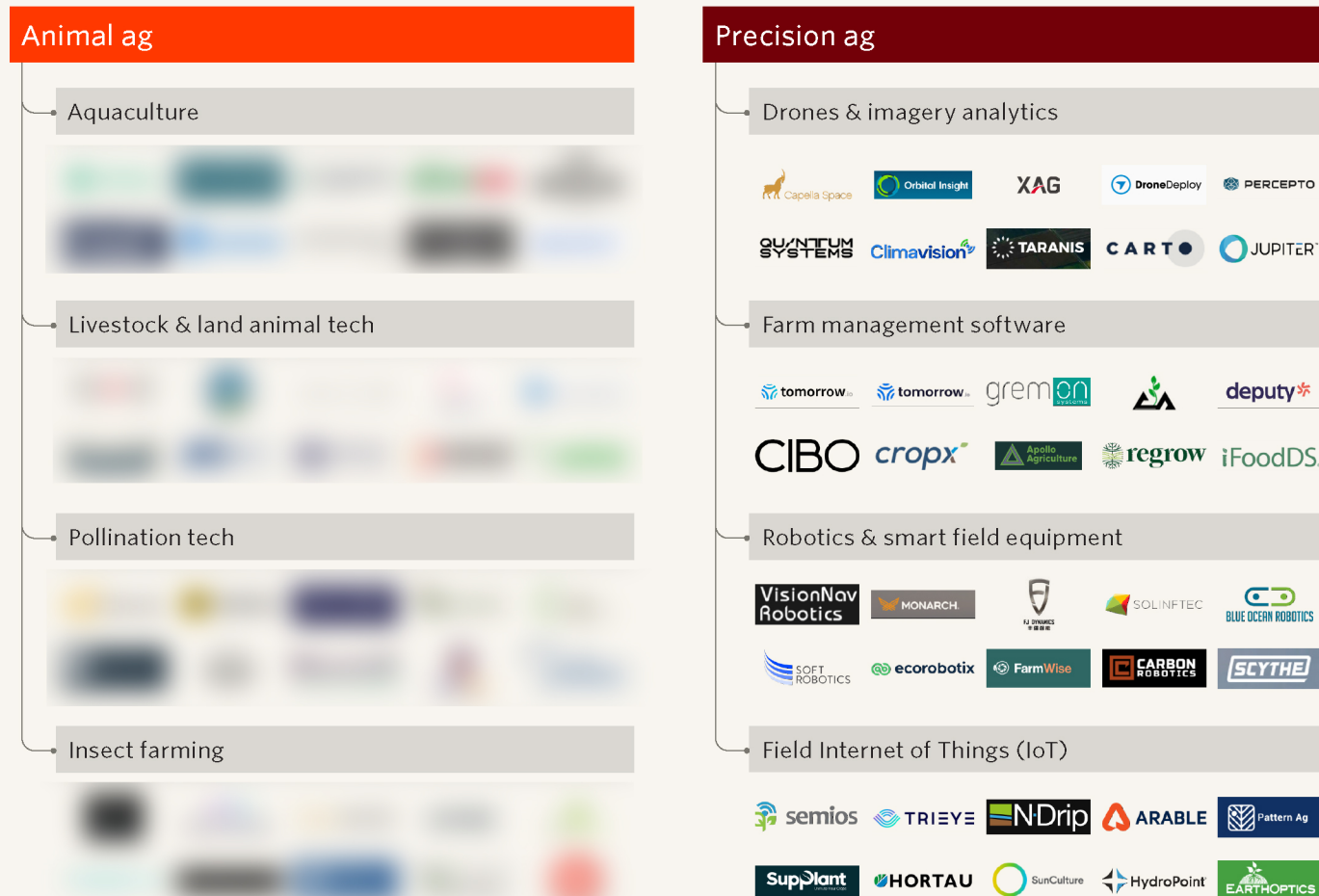




Agtech VC ecosystem market map

Click to view the interactive market map on the PitchBook Platform.

Market map is a representative overview of venture-backed or growth-stage providers in each segment. Companies listed have received venture capital or other notable private investments.





VC activity

In Q3, we logged 177 agtech deals with a cumulative value of \$2.0 billion. Deal values improved 19.1% QoQ, although it's too early to call it a rebound. The largest deal of the quarter was a \$325.0 million Series A in “zero-carbon” nitrogen fertilizer producer [Atlas Agro](#). The company was recently selected by the US Department of Energy to establish a Pacific Northwest Hydrogen Hub to “accelerate the commercial-scale deployment of clean hydrogen.”³ The second-largest deal of the quarter belonged to biological inputs provider [Indigo](#). This \$250.0 million round comes months after a prior round that saw the company's valuation drop from \$4.0 billion to \$200.0 million. Environmentally friendly agriculture inputs like biofertilizers and biopesticides present an attractive market opportunity, but major challenges exist in funding, scaling, regulations, effectiveness, and farmer education.

Deal values have stabilized at around \$2.0 billion per quarter since Q4 2022, with declining growth rates since Q3 2021. However, deal growth turned positive in Q3 2023. Deal counts tell another story. Counts peaked in Q1 2022 and have been in decline since then. The current market volatility and challenging exit options are still hindering deal activity. However, we are optimistic about recent tech IPOs like Instacart and Klaviyo, which give investors hope for a healthy and active venture ecosystem in the near term.

Despite a challenging funding environment, median deal sizes and valuations continue to reach record highs. The 2023 YTD median deal size totaled \$3.4 million, up 21.2% YoY, while the median pre-money valuation totaled \$15.6 million, up 26.0% YTD. We suspect several factors are at play here. Reduced deal disclosures suggest many flat or down rounds are being omitted from the data.

3: “Atlas Agro Selected by U.S. Department of Energy to Develop Pacific Northwest Hydrogen Hub,” Atlas Agro, October 13, 2023.

Agtech VC deal activity by quarter



Source: PitchBook • Geography: Global • *As of September 30, 2023



VC ACTIVITY

Key agtech late-stage VC deals in Q3 2023*

Company	Close date (2023)	Subsegment	Stage	Deal value (\$M)	Lead investor(s)	Valuation step-up
Silo	July 12	Agribusiness marketplaces	Series C	\$132.0	First-Citizens Bank & Trust, Koch Disruptive Technologies	N/A
Aphea.Bio	July 11	Plant biotech	Series C	\$76.4	Innovation Industries, Korys Investments	N/A
Captain Fresh	September 5	Agribusiness marketplaces	Series C	\$71.7	Evolve Capital, Prosus Ventures, SBI Investment, Tiger Global Management	2.0x
Oritain	July 11	Plant data & analysis	Series C	\$57.0	Highland Europe	N/A
Nagro	September 20	Finance & insurance	Series A	\$49.0	N/A	N/A
Cemvita	July 13	Plant biotech	Late-stage VC	\$40.0	Oxy Low Carbon Ventures	N/A
Ceres Imaging	September 5	Drones & imagery analytics	Series C	\$38.0	REMUS Capital, XTX Ventures	0.4x
Bactolife	August 8	Animal biotech	Series A	\$33.2	Athos	N/A
Plotlogic	August 3	Drones & imagery analytics	Series B	\$30.7	Galvanize Climate Solutions, SE Ventures	N/A
CH4 Global	August 29	Animal biotech	Series B	\$29.0	Cleveland Avenue, DCVC, DCVC Bio	1.9x

Source: PitchBook • Geography: Global • *As of September 30, 2023



VC ACTIVITY

Top late-stage VC-backed agtech companies by total VC raised to date*

Company	Category	VC (\$M) raised to date	Post-money valuation (\$M)	IPO probability	M&A probability	No exit probability
Solugen	Biomaterials	\$637.8	\$2,175.0	83%	15%	2%
Pivot Bio	Plant biotech	\$622.0	\$1,700.0	27%	71%	2%
InnovaFeed	Insect farming	\$479.3	N/A	41%	57%	2%
Little Leaf Farms	Indoor growers	\$410.0	N/A	54%	44%	2%
Frubana	Agribusiness marketplaces	\$354.3	N/A	32%	66%	2%
Pure Harvest Smart Farms	Indoor growers	\$334.3	N/A	69%	28%	3%
DNA Script	Plant biotech	\$294.0	\$659.7	85%	10%	5%
Capella Space	Drones & imagery analytics	\$254.0	\$320.0	12%	86%	2%
AgBiome	Plant biotech	\$236.2	N/A	55%	40%	5%
Gremon Systems	Farm management software	\$237.3	N/A	12%	74%	14%

Source: PitchBook ▪ Geography: Global ▪ *As of September 30, 2023

Note: Probability data based on [PitchBook VC Exit Predictor methodology](#).



SELECT COMPANY HIGHLIGHTS: SOLUGEN



Founded 2016	Total VC raised \$637.8M over five deals	Lead investors Kinnevik, Lowercarbon Capital, and Refractor Capital
Employees 175+	First disclosed institutional round Raised \$18.7M in Series A funding at a \$24.0M pre-money valuation (October 2018)	
Total raised \$637.8M	Last disclosed financing Raised \$200.0M of Series D funding at a \$2.0B pre-money valuation (July 2022)	

Overview

[Solugen](#) is a biotechnology company that specializes in the development of plant-based biomaterials. The company is developing solutions for industries including agriculture, water treatment, energy, construction, cleaning, and personal care. It was founded in 2016 to replace petroleum products with sustainable alternatives.

[Solugen](#) manufactures enzymes out of sugar or biobased feedstocks using precision fermentation and CRISPR-Cas9 gene editing. The company’s core product offerings for the agriculture industry include plant nutrients and water conditioning products. Its first plant nutrient is a complexing agent that delivers micro- and macronutrients via foliar applications. This proprietary product provides an alternative to synthetic chelating agents, which have biodegradability and toxicity challenges, according to [Solugen](#).⁷

Leadership

The leadership team at [Solugen](#) is uniquely positioned to steer the company forward, leveraging their diverse backgrounds and expertise in biotechnology and sustainable chemistry. Gaurab Chakrabarti, the co-founder and CEO, brings a strong background in biotechnology and a deep understanding of sustainable agriculture, enabling him to effectively navigate the complexities of the industry and drive strategic growth initiatives. His leadership is complemented by Sean Hunt, the co-founder and chief technology officer, whose extensive biochemistry knowledge and innovative contributions to the development of [Solugen](#)’s proprietary technology showcase his capability in leading the company’s R&D efforts. With their combined expertise, the leadership

7: “Sugar-Based, Decarbonized Complexing Agent Unlocks Crop Yield Potential,” [Solugen](#), March 30, 2023.



SELECT COMPANY HIGHLIGHTS: SOLUGEN

team at [Solugen](#) demonstrates a capacity to pioneer groundbreaking solutions in the agricultural sector, placing the company at the forefront of sustainable innovation in the industry.

Competitors

[Solugen](#) operates in a competitive landscape within the agricultural biotechnology sector. Some of its key competitors include:

- [Indigo Agriculture](#): Known for its microbial and digital technologies that aim to improve crop yields and enhance sustainability in agriculture.

- [Pivot Bio](#): A company that develops nitrogen-producing microbes to replace or reduce the use of synthetic nitrogen fertilizers.
- Greenway Biotech and others: Greenway Biotech, Mar Vista Resources, and AgroPlantae are just a few of the many companies manufacturing Ethylenediaminetetraacetic acid (EDTA), a synthetic chemical that is the more direct alternative to [Solugen](#)’s agricultural nutrition product. These products have negative environmental impacts but are accessible and cost-effective.

While competition in the agricultural biotechnology industry remains fierce, [Solugen](#) has managed to differentiate itself through its unique approach to chemical production and a commitment to sustainability.

Financing history

Series D	Series C1	Series B1	Series B	Series A
July 26, 2022	September 9, 2021	September 15, 2020	May 22, 2019	October 31, 2018
Total raised: \$200.0M	Total raised: \$357.0M	Total raised: \$30.2M	Total raised: \$32.0M	Total raised: \$18.7M
Pre-money valuation: \$1,975.0M	Pre-money valuation: \$1,443.0M	Pre-money valuation: \$199.9M	Pre-money valuation: \$70.0M	Pre-money valuation: \$24.0M
Investors: Refactor Capital , Lowercarbon Capital , and Kinnevik	Investors: Baillie Gifford and GIC	Investors: N/A	Lead investor: Founders Fund	Investors: Fifty Years and Founders Fund



About PitchBook Industry and Technology Research

Independent, objective, and timely market intel

As the private markets continue to grow in complexity and competition, it's essential for investors to understand the industries, sectors and companies driving the asset class.

Our Industry and Technology Research provides detailed analysis of nascent tech sectors so you can better navigate the changing markets you operate in—and pursue new opportunities with confidence.

©2023 by PitchBook Data, Inc. All rights reserved. No part of this publication may be reproduced in any form or by any means—graphic, electronic, or mechanical, including photocopying, recording, taping, and information storage and retrieval systems—without the express written permission of PitchBook Data, Inc. Contents are based on information from sources believed to be reliable, but accuracy and completeness cannot be guaranteed. Nothing herein should be construed as any past, current or future recommendation to buy or sell any security or an offer to sell, or a solicitation of an offer to buy any security. This material does not purport to contain all of the information that a prospective investor may wish to consider and is not to be relied upon as such or used in substitution for the exercise of independent judgment.

PitchBook Data, Inc.

John Gabbert Founder, CEO

Nizar Tarhuni Vice President, Institutional Research and Editorial

Paul Condra Head of Emerging Technology Research

Additional research

Eric Bellomo
eric.bellomo@pitchbook.com
Gaming
E-Commerce

Brendan Burke
brendan.burke@pitchbook.com
Internet of Things
Information Security
Artificial Intelligence & Machine Learning

Aaron DeGagne
aaron.degagne@pitchbook.com
Medtech
Digital Health

Alex Frederick
alex.frederick@pitchbook.com
Agtech
Foodtech

Jonathan Geurkink
jonathan.geurkink@pitchbook.com
Supply Chain Tech
Mobility Tech

Kazi Helal
kazi.helal@pitchbook.com
Biopharma
Pharmatech

Derek Hernandez
derek.hernandez@pitchbook.com
Enterprise SaaS
Infrastructure SaaS

Ali Javaheri
ali.javaheri@pitchbook.com
Emerging Spaces

Robert Le
robert.le@pitchbook.com
Insurtech
Crypto

John MacDonagh
john.macdonagh@pitchbook.com
Carbon & Emissions Tech
Clean Energy Tech

Rebecca Springer
rebecca.springer@pitchbook.com
Healthcare Services
Healthcare IT

Rudy Yang
rudy.yang@pitchbook.com
Enterprise Fintech
Retail Fintech