



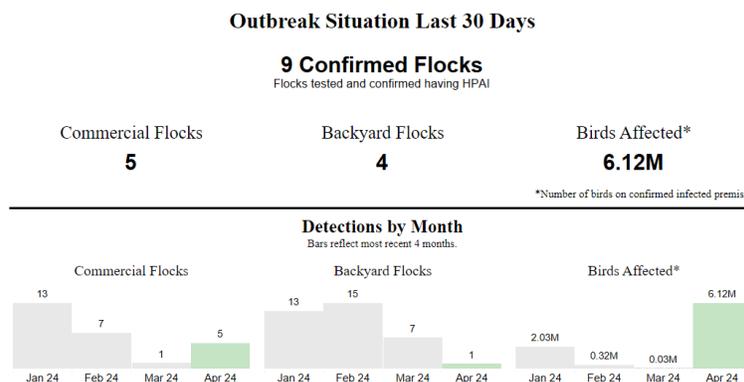
DECENTRALIZED EGG FARMING MAKES VITAL FARMS (VITL) A WINNER AS FREQUENCY OF BIRD FLU AND CULLINGS INCREASES

Key takeaway: Cal-Maine Foods (CALM) is not calm anymore, as the company is having to cull 3.6% of its total flock amid the recent bird flu outbreak in April 2024. Bird Flu has become a repeat offender for the egg industry in the U.S. as frequent incidence of this disease has led to culling of millions of birds every year, disrupting the supply chain, driving prices higher and as supply chain resurrection takes place, the prices fall. We believe investors in the sector need to look beyond companies with large caged-farms susceptible to such disruptions. Companies such as Vital Farms (VITL) that are using technology to optimize and scale pasture-raised farming using traceability technology and can command premium pricing for their ethical produce, emerge as potential winners in the sector, and should be on investors' radar.

The recent breakout of highly pathogenic avian influenza (HPAI) poses a significant threat to poultry health and therefore to temporary economic stability of the egg sector. In early April, the Centers for Disease Control and Prevention issued a health alert about a Texas farm worker testing positive for the HPAI, suggesting a modest threat to the U.S. egg market. This report came shortly after Cal-Maine Foods, the largest producer of fresh shell eggs in the U.S., announced a severe outbreak within one of its Texas facilities. The company had to cull approximately 1.6 million laying hens—about 3.6% of its total flock. This incident highlights a vulnerability in poultry health management and a near-term impact on egg supply and pricing.

The H5N1 virus has not only been detected in poultry but also in Texas dairy herds. The movement of the virus to other species could complicate near-term containment and eradication efforts but is not expected to have any impact on dairy product supply and pricing. HPAI poses a threat to poultry health and therefore will likely contribute to economic volatility in egg pricing. Infected flocks are culled to prevent wider outbreaks. The immediate reduction in egg production capacity will likely lead to egg price increases before replacement capacity can be brought online. For instance, in January 2023, the price of a dozen grade A eggs surged to more than \$4.82, marking a 100% increase from the previous year, largely due to the capacity reduction caused by bird flu. The economic ramifications are significant. During the 2022 outbreak, U.S. consumers spent an additional \$930 million to almost \$1.2 billion on eggs. Economists at the University of Arkansas found that avian flu directly contributed to a 7.2% to 9.2% increase in retail egg prices. According to the HPAI detection data compiled by Animal and Plant Inspection Service of USDA, as of 16 April 2024, 9 flocks infecting 6.12 million birds were identified. This is the highest number of detections since January 2024 and yet, while material in the near-term, not dramatically unusual for the industry.

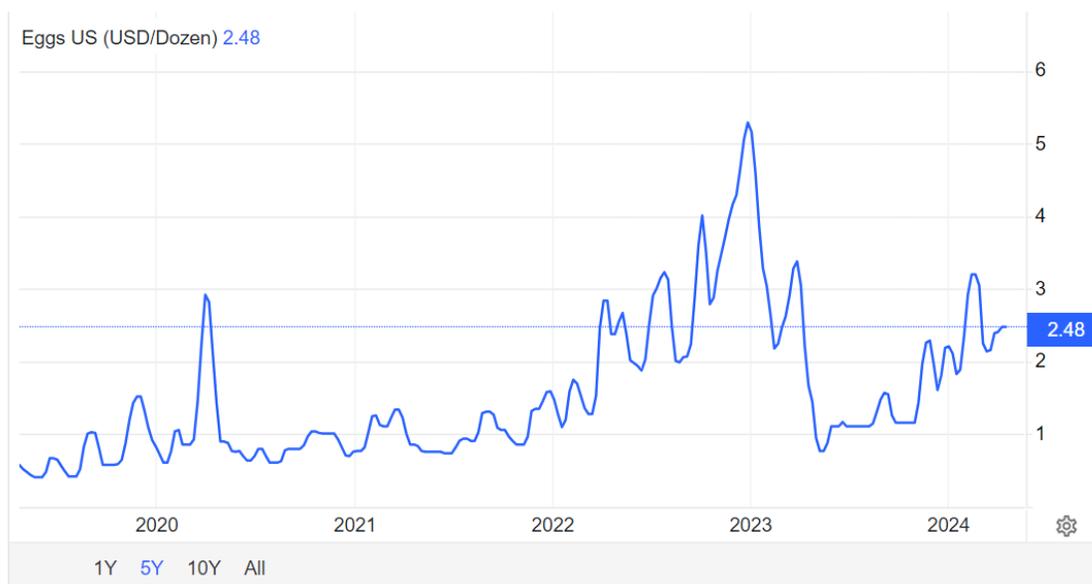
Chart 1: Confirmed HPAI Detections



Source: Intro-act, [Animal and Plant Health Inspection Service, USDA](#)

Rapid culling will eventually create a supply shortfall that will push prices higher. Wholesalers can cushion the blow in the short term by adjusting the percentages of eggs set aside for consumption versus those used for hatching. Typically, 86.0-87.5% of eggs produced are directed toward consumer use, and the remainder for replenishing flocks. By tweaking these ratios, the industry may stabilize supply and price spikes at the margin. This stopgap measure, however, does not address the underlying issue of disease management and flock immunity. Preventing future outbreaks and minimizing supply impacts is critical. Enhanced biosecurity measures are the first line of defense, including stricter controls on farm access, improved sanitation practices, and rigorous monitoring of wildlife interactions with commercial and backyard poultry. It is important, therefore, for egg producers to enhance precautionary measures toward effectively and efficiently preventing, preempting, and managing these diseases, to avoid future culling-related supply shocks.

Chart 2: Egg Prices are on the Rise Again



Source: Intro-act, [Trading Economics](#)

We believe technology can play a crucial role detecting and controlling bird flu to stabilize future egg prices by preventing large-scale outbreaks that disrupt supply chains. Technological advancements, while requiring initial investments, could save billions in losses due to culling and lost production, making them invaluable tools for the poultry industry and associated food supply chains, including those integral to Wall Street's investment decisions. The implementation of these technologies could significantly mitigate the impact of bird flu outbreaks on poultry farms, leading to more stable egg production rates. By ensuring that outbreaks are managed quickly and efficiently, supply chain disruptions can be minimized, which in turn helps stabilize egg prices. Supply stability is crucial for consumer markets as it will lead to more predictable availability and pricing of eggs. We offer the following detailed look at how technology can be leveraged in this context:

■ Early Detection Systems

- **Infrared sensors:** Utilizing infrared technology to monitor the body temperature of poultry can help detect fever, a symptom of bird flu, early before it spreads extensively. These systems can be installed in barns and cages to continuously monitor temperatures and alert farmers to potential outbreaks.
- **Acoustic monitoring:** Sound sensors can detect changes in bird vocalizations, which is a symptom of distress and potentially indicative of infection. This early warning sign can prompt immediate testing and containment strategies.

- **Automated drone surveillance:** Drones equipped with cameras and sensors can monitor flocks for unusual behavior or deaths. Drone technology can cover large areas quickly, reducing the manpower needed and speeding up the response time to potential outbreaks.
- **Data Analytics and AI**
 - **Predictive modeling:** Artificial intelligence can analyze data from various sources such as weather conditions, bird migration patterns, and nearby outbreaks to predict the risk levels for specific farms. This predictive power can be crucial in preempting and mitigating outbreaks.
 - **Machine learning algorithms:** AI can help in diagnosing avian influenza more accurately by comparing real-time farm data with historical patterns of confirmed cases. This improves decision-making about quarantine measures to prevent spread.
- **Genetic and Biochemical Sensors**
 - **CRISPR technology:** Gene editing tools like CRISPR can be adapted to create highly sensitive detectors for avian influenza strains. By programming CRISPR to detect the RNA sequences of the bird flu virus, these sensors can identify the presence of the pathogen in environmental samples quickly and with high specificity.
 - **Portable testing kits:** Rapid on-site testing kits, which can detect viral antigens or genetic material of the bird flu virus, allow for immediate containment and treatment measures, significantly reducing the potential for widespread transmission.
- **Blockchain for Supply Chain Monitoring**
 - **Traceability:** Blockchain technology can be used to ensure complete traceability in the supply chain. It can track the health data of poultry batches from farm to store, ensuring that any batch with an infection is quarantined promptly, minimizing the risk of large-scale impact on egg production.
 - **Smart contracts:** These could be used to automatically execute agreements such as culling infected flocks without the need for manual processing, speeding up response times and potentially saving millions of birds from infection, which stabilizes supply levels and prices.
- **Robotics and Automation**
 - **Robotic monitoring and cleaning:** Robots can be used for regular cleaning and disinfecting poultry environments, reducing human contact with infected birds and thus controlling the spread of the virus. They can also be employed to handle birds directly, thereby minimizing the risk of transmission through human vectors.

We believe that egg producers need to find ways to mitigate the impact of bird flu on their supply chain by initiating technology interventions at varying production stages such as detection, monitoring, distribution, and even recall if required. We note, however, that leading egg-producers such as Cal-Maine Foods (CALM) have been vulnerable to acute bird flu strikes, resulting in a questionable need for mass culling of millions of birds resulting in supply chain disruptions. On the other hand, egg suppliers that focus on a pasture raised system, use decentralized farms, and while commanding a premium price are less susceptible to price volatility. As a result, we believe that investors should consider VITL over CALM, despite a run-up in VITL's stock price. We spotlight the company below.

Company Spotlight: Vital Farms Inc. (VITL)

Founded in 2007 and headquartered in Austin, Texas, **Vital Farms (VITL)** is a leading food company that specializes in ethically produced eggs, dairy products, and other perishables. The company is renowned for its commitment to sustainability and animal welfare, operating under a pasture-raised model that distinguishes it from conventional egg producers. Vital Farms went public in July 2020, offering a fresh perspective in the food sector focused on transparency and ethical practices. It sources its products from a large network of over 300 family farms spread across the United States, primarily in the Midwest, Northeast, and Southern regions. This decentralized model not only may reduce risks associated with diseases like avian influenza but also leverages locally-produced, high-quality, pasture-raised eggs (and other dairy products) to a broad customer base.

VITL's segments and major products include:

- **Eggs:** Their flagship product, pasture-raised eggs, is the cornerstone of Vital Farms' offerings. These eggs are produced by hens that have 108 square feet of pasture each, significantly more than the industry standard for free-range or cage-free hens.
- **Butter:** The company also produces pasture-raised butter, which has gained popularity for its quality and the ethical treatment of cows. The butter is crafted using cream from pasture-raised cows that graze freely on fresh pasture.
- **Other dairy products:** In addition to butter, Vital Farms has recently expanded its dairy segment to include ghee and aims to explore further dairy categories such as cheese and milk.
- **Additional perishables:** Vital Farms is exploring opportunities to expand its product lines to include other “ethically produced” perishable food items, which is aligned with its stated core values of “sustainability and transparency.”

Chart 3: VITL's Decentralized Business Model Aimed at Delivering Quality at Scale



Source: Intro-act, Investor Presentation.

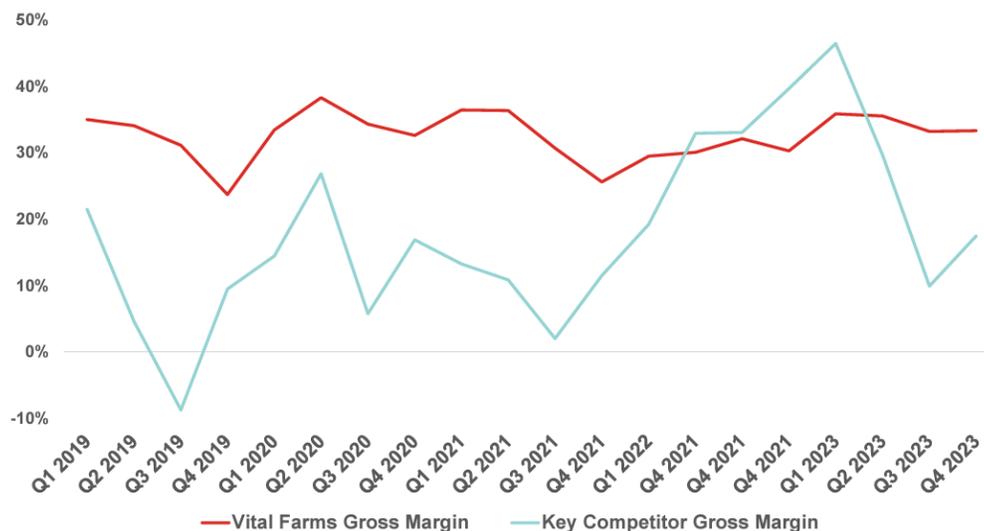
A differentiated business model makes VITL stand out in the market. Vital Farms' business model is highly differentiated in the food production industry due to its emphasis on ethical practices and sustainability. This model includes:

- **Pasture-raised farming:** Unlike traditional egg production systems, Vital Farms ensures that all hens have ample space to roam, which significantly reduces the stress and health issues common in densely populated environments.

This approach not only enhances animal welfare but also reduces the risk of disease transmission, such as avian influenza, making the company's operations inherently more resilient to outbreaks.

- **Decentralized supplier network:** By sourcing from over 200 family farms, Vital Farms avoids the pitfalls of centralized production systems where a disease outbreak at a single site can disrupt the entire supply chain. This network also allows for rapid isolation and response to any health issues, safeguarding against widespread production impacts.
- **Transparency and traceability:** Vital Farms maintains a transparent supply chain with thorough traceability from farm to retail. This is pivotal during health crises, as it allows for quick action and minimizes consumer impact, thereby enhancing brand trust and loyalty.

Chart 4: VITL Has Maintained Resilient Gross Margin Compared to CALM (Key Competitor)



Source: Intro-act, Investor Presentation

The company's future growth is going to be driven by a combination of drivers, including:

- **Resilience to bird flu:** The company's business model offers greater resilience against avian influenza outbreaks, a frequent concern in the poultry industry. This resilience has been appealing to investors, especially following recent outbreaks that have impacted large producers.
- **Operational efficiencies:** Despite its decentralized model, Vital Farms has continued to improve operational efficiencies, which has helped maintain healthy profit margins and attract investor interest.
- **Growing demand for ethical products:** There is increasing consumer demand for ethically produced and sustainable food products. Vital Farms, with its strong commitment to transparency and ethical practices, is well-positioned to capitalize on this trend.

Biosecurity Measures.

- **Stringent biosecurity protocols:** Due to the nature of pasture-raised farming, Vital Farms enforces strict biosecurity measures that are tailored to open environments. These include perimeter fencing, controlled access points, and sanitation protocols that are specifically designed to mitigate the entry and spread of pathogens.

- Regular health monitoring:** Vital Farms' model involves regular veterinary health checks and more frequent interaction with the hens at a ground level, which can lead to earlier detection of health issues such as bird flu. The introduction of AI-driven health monitoring systems across all partner farms has not only reduced disease risk but also minimized potential disruptions from outbreaks.

A strong business model and competitive positioning are reflected in VITL's robust fundamentals and stock outperformance. Vital Farms reported a robust increase in quarterly revenue in 4Q23, with topline expanding 24% year-over-year to \$130 million. This growth is attributed to expanded distribution channels, increased shelf space in retail outlets, and growing consumer demand for ethically produced dairy and egg products. Gross margin improved by 200 basis points to 25.5%, driven by better product mix and enhanced supply chain efficiencies. Ongoing initiatives to optimize farming operations and reduce waste contributed to margin expansion. Net income for the quarter stood at \$6 million, or \$0.22 per share, compared to \$2.5 million, or \$0.09 per share, in Q4 2022. The significant improvement in earnings underscores operational efficiencies and successful management of cost pressures, particularly in feed and healthcare. Cash flow from operations increased to \$18 million, up from \$12 million in the prior year quarter, reflecting better working capital management and higher profitability.

- The stock has reacted positively to its earnings results and is up >60% YTD as of 4/17, significantly outperforming CALM as well as the broader index. However, given the company's resilient business model and solid fundamentals, we expect this momentum to continue and believe that VITL should be on Agtech investors' watchlist.

Chart 5: YTD Stock Performance – VITL vs. CALM



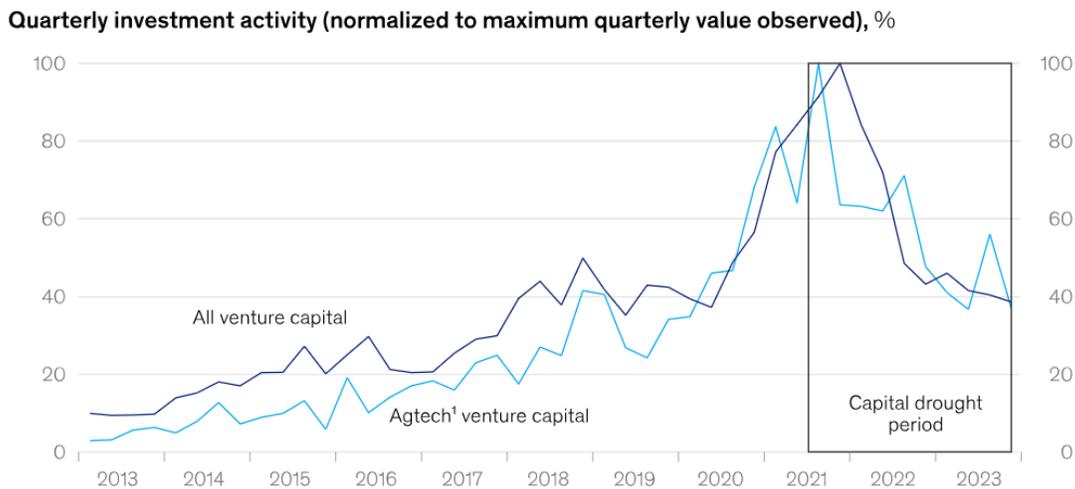
Source: Intro-act, Yahoo Finance

AGTECH NEWS

INDUSTRY TRENDS

Seizing opportunities amid the agtech capital drought. Despite a slowdown and funding challenges in the agriculture technology sector, investment opportunities are emerging. The market faces a decline in venture capital funding and challenges in various subsectors. However, long-term prospects remain promising due to sustainability concerns and technological advancements. Investors can capitalize on this by asserting operational discipline, making distressed investments, pursuing roll-up plays, or forming partnerships. Agtech startups can also adapt by reducing burn rates and considering vertical integration. [Read More](#) (McKinsey)

Chart 6: Venture Capital Funding in Agriculture technology Fell 30% in 2023



Source: Intro-act, McKinsey, PitchBook

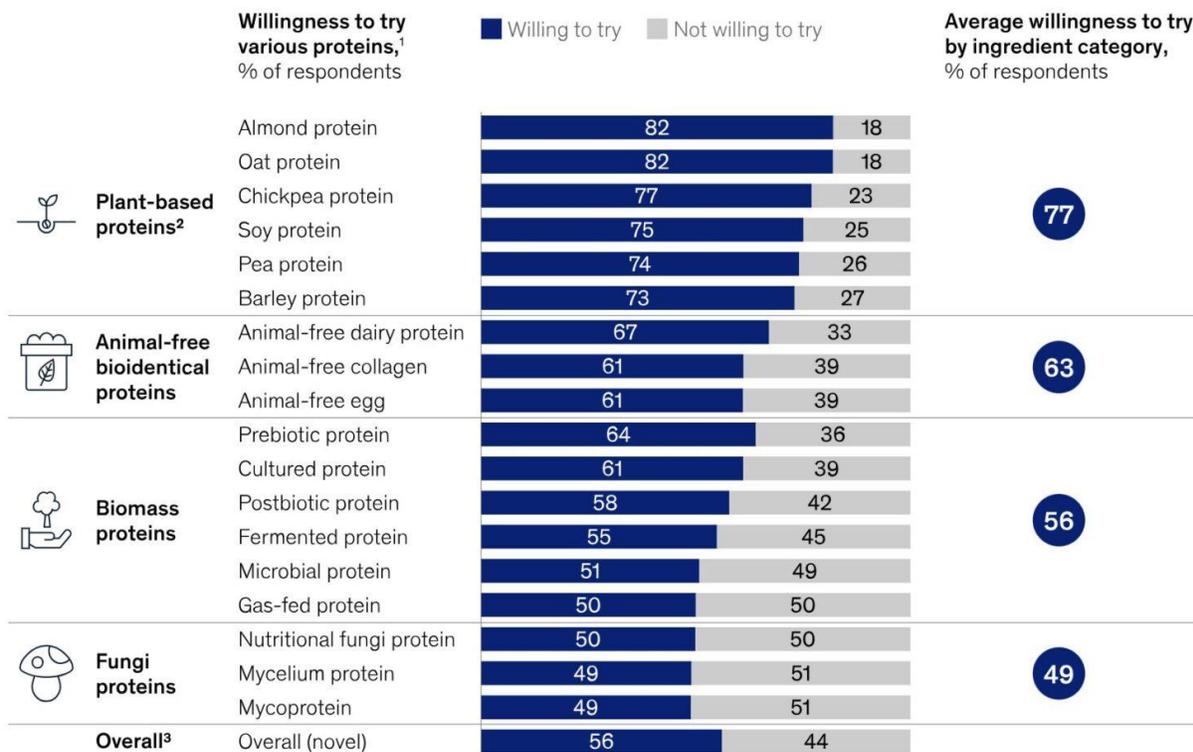
Consumers trading down to less expensive meat: survey. According to data by 84.51°, 43% of consumers are cooking dishes with less meat due to high grocery costs. 37% are opting for cheaper meat cuts. Despite inflation, shoppers prioritize taste and value, with 60% focusing on flavor. While meat prices rose by 7.4% year-over-year, poultry decreased by 1.3%. Organic meat purchases decreased, and 43% prioritize hormone-free meat. Overall, protein consumption remains stable, with 66% consuming the same amount as in 2023. [Read More](#) (Agriculture Dive)

Precision tech slow to catch on in agriculture. A recent GAO report highlights that only 27% of U.S. farmers and ranchers utilize precision agriculture technology despite its potential benefits like increased profits and reduced resource usage. Challenges include high costs, lack of interoperability among equipment, and data-sharing concerns. Adoption rates vary due to crop diversity and farm size, with larger farms showing higher adoption. Complexity and demographics, with younger farmers embracing tech faster, also influence adoption rates. [Read More](#) (Farm Progress)

USDA expects reduced milk supplies and prices. The USDA anticipates a drop in milk production due to reduced cow output but maintains herd size. Dairy economist Betty Berning foresees tight margins for farmers this year, citing limited heifers and modest herd sizes. USDA's report adjusts butter prices upward due to demand, while reducing prices for cheese, nonfat dry milk, and whey. Class III price decreases because of lower cheese and whey forecasts, while Class IV prices rise due to higher butter prices compensating for lower nonfat dry milk prices. The projected all-milk price for this year is revised downward to \$20.90 per hundredweight. [Read More](#) (Brownfield News)

56% of Americans open to trying novel protein ingredients, with some willing to pay four times more for them. A recent survey reveals Americans are increasingly open to novel proteins, with over half willing to pay more for them than animal proteins, highlighting a growing emphasis on health. Companies like Impossible Foods and Beyond Meat are shifting marketing to focus on nutrition, tapping into consumer demand. The survey gauged attitudes towards various novel protein categories, indicating a willingness to try new ingredients, especially those perceived as healthier options, with lunch and snacks emerging as key consumption times. [Read More](#) (Green Queen)

Chart 7: Over Half of Consumers Willing to Try Novel Proteins



Source: Intro-act, Green Queen, McKinsey

Farmer sentiment improves as interest rate expectations shift. In March, U.S. farmers' sentiment improved according to the Purdue University/CME Group Ag Economy Barometer, with a 3-point increase to 114. While the Index of Current Conditions decreased by 2 points, the Index of Future Expectations rose to 120. This disparity reflects farmers' perception of past financial challenges and optimism for the future. Expectations for interest rate changes shifted, with 48% expecting a decline. High input costs remain a top concern, despite growing optimism for farmland values and interest in alternative land uses like carbon sequestration and solar energy. [Read More](#) (CropLife)

Autonomous robots help farmers prepare for world's largest tulip bloom. In the Netherlands, autonomous AI-enabled robots, like H2L Robotics' Selector180, aid in identifying diseased tulip bulbs. Weighing 2,600 pounds, the Selector uses GPS for navigation and onboard cameras to capture images of tulip fields. An AI model analyzes these images, detecting signs of disease, such as red stripes on leaves, to separate infected bulbs. Trained on insights from experienced tulip farmers, these robots mitigate the decline in human expertise, crucial for the Netherlands' tulip industry. [Read More](#) (Popular Science)

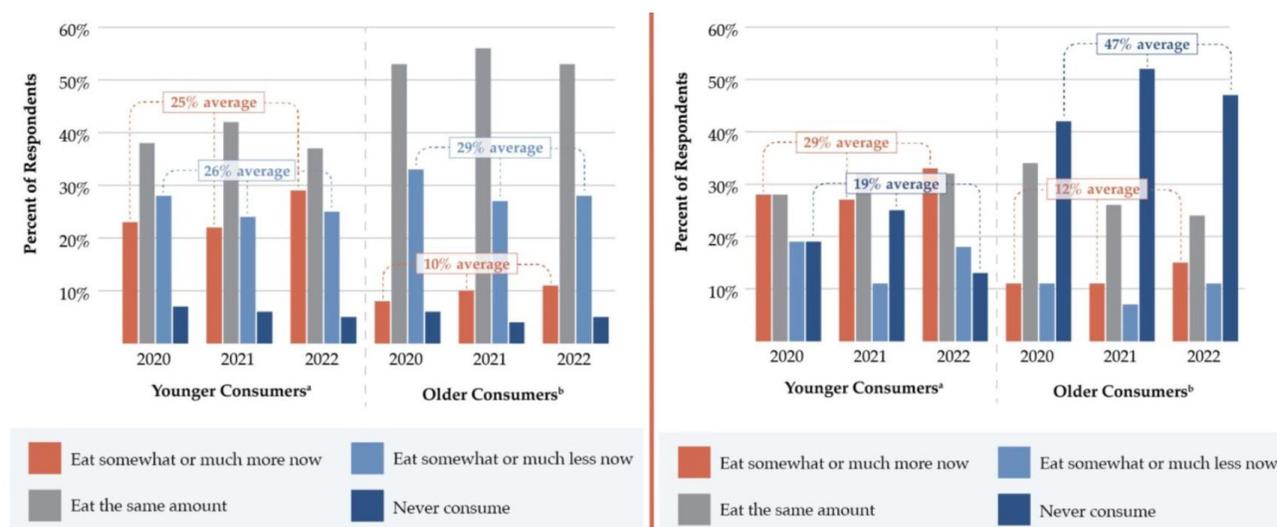
New Zealand plant-based pioneer Sunfed Meats to shut down after post-pandemic pressures. Sunfed Meats, a prominent Asia-Pacific plant-based meat company based in New Zealand, is closing down due to supply chain challenges, high costs, and investor skepticism. Founded in 2015 by Shama Sukul Lee, the company gained popularity with its Chicken Free Chicken product but faced difficulties sustaining growth. Despite initial success and investments, the impact of COVID-19 compounded existing challenges, leading to the company's closure amid a struggling plant-based meat sector. [Read More](#) (Green Queen)

Vegetable demand drives global seeds growth. The global vegetable seeds market, valued at \$8 billion in 2022, is led by 10 countries. Factors like population growth and technology drive its expansion. With over 40 crops, the market is competitive yet fragmented. Major companies invest heavily in R&D, leading to innovations like hybrid seeds and specialized varieties. Growth hinges on domestic consumption, exports, and advancements in protected agriculture. [Read More](#) (S&P Global)

Field-scale crop water consumption estimates reveal potential water savings in California agriculture. Efficient management of agricultural irrigation is crucial for food security amid climate change. A new method utilizing remote sensing and machine learning assesses crop water consumption, aiding water-saving strategies. Results show switching to lower water crops can reduce consumption by 93%, but requires adopting less common crops. Also, certain regions show lower irrigation efficiencies, suggesting untapped water-saving potential. [Read More](#) (Nature)

Meat paradox: Americans are eating more plant-based, but also more red meat. Despite acknowledging the benefits of vegan food, most Americans resist adopting plant-based diets. Surveys show a disconnect between attitudes towards climate change and eating habits, with a paradoxical view on meat and plant consumption. Although there's a slight increase in plant-rich diets, it only represents a quarter of the population. Surprisingly, red meat consumption is rising, especially among younger demographics. Lack of awareness and taste preferences hinder widespread adoption of sustainable diets, calling for increased education and supportive food environments. [Read More](#) (Green Queen)

Chart 8: Red Meat Consumption VS Plant-Based Meat Consumption



Source: Intro-act, Green Queen, Nutrients

Integrating data-driven solutions for fine-tuned climate control in indoor farming. Food shortages globally prompt agricultural innovation. Next-gen tech transforms farms, ensuring optimal climate control for growth. Automation and data streamline operations, benefiting small outfits. Weather stations, robots, and smart devices monitor and adjust conditions. Data-driven approaches improve yield, quality, and consistency, reducing waste. Technology fosters confidence in uncertain climates, making agriculture dependable amidst change. [Read More](#) (Global Agtech)

Digital farm: Farmers expect use of artificial intelligence to triple. A global study by Continental on agriculture reveals varying levels of digitalization among farmers worldwide. While some embrace technologies like AI and robotics, others lag behind. Digital solutions, such as precision farming using GPS and data analysis, enhance efficiency and sustainability. Farmers' satisfaction with digitalization varies by region and farm size. Expectations for future technology adoption, particularly robotics and AI, indicate significant growth, prompting the need for tailored solutions from technology companies like Continental. [Read More](#) (Continental)

Ag tech businesses bet big on artificial intelligence. Panelists at the 2024 Agri-Tech Innovation Summit envision AI's increasing integration into farming machinery, heralding a shift towards complete autonomy. Generative AI, capable of independent learning and innovation, holds promise in transforming agriculture. Predictions suggest AI-driven automation within five years, addressing challenges posed by climate change and a growing population. Embracing data-sharing among ag tech companies is deemed crucial for machine autonomy success. Ultimately, AI's role promises a better work-life balance for farmers in the future. [Read More](#) (Farm Progress)

Avian flu confirmed in U.S. livestock for first time. The first case of highly pathogenic avian influenza in U.S. livestock was confirmed, affecting baby goats on a Minnesota farm where a poultry flock was depopulated due to the virus. Dr. Brian Hoefs explains the goats were exposed to a high viral load, resulting in neurological symptoms. This event is unusual as goats are considered dead-end hosts for the virus. Hoefs emphasizes the low risk to humans but stresses biosecurity during spring migration. [Read More](#) (Brownfield News)

Q1 2024 Agtech VC investment and Exit round up. In the last quarter, 178 AgTech startups raised \$1.3B, showing a 1% increase in funding and 5% increase in deals from Q4 2023. There were three exits via M&A. AgTech investment trends mirrored broader VC landscape, with total funding remaining below \$1.5B for the fifth consecutive quarter. Top 10 deals accounted for 47% of funding. Exits slowed in Q1 2024, with no major acquisitions by agriculture companies, marking the lowest exits since 2020. [Read More](#) (CropLife)

Chart 9: Global Venture Dollar Volume Through Q1 2024



Source: Intro-act, [Crunchbase](#), CropLife

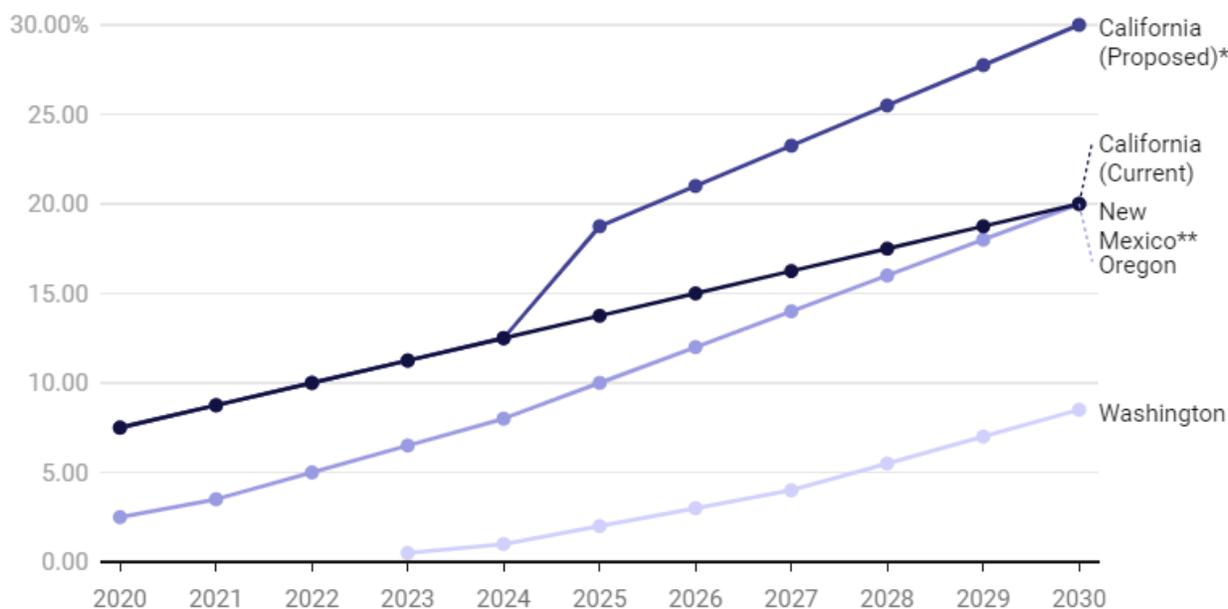
Agtech promises to reduce farm emissions. but is the market ready? Emerging technologies hold promise for decarbonizing agriculture, but financial concerns hinder widespread adoption. Experts stress that relying solely on practices like rotational grazing won't suffice; sustainable methods, dietary shifts, and tech adoption are key. Yet, with many innovations in early stages, swift action is crucial. Regulatory barriers and insufficient incentives persist, as

highlighted at the World Agri-Tech Summit. Overcoming these hurdles is essential for realizing agtech's full potential in emissions reduction. [Read More](#) (Global Agtech)

US farms are making an urgent push into AI. It could help feed the world. American farmers, facing labor shortages and climate challenges, are rapidly embracing AI in agriculture. With an average farmer age of 60 and a dwindling workforce, technology like AI-driven pest identification and autonomous machinery is essential for efficiency. The US government is incentivizing AI adoption, aiming to increase productivity, reduce costs, and mitigate environmental damage. AI tools, from drones to automated sorting, promise to revolutionize farming globally. [Read More](#) (BBC News)

How a new wave of clean fuels bills could spur a biogas boom. New Mexico recently joined the ranks of states implementing clean fuel standards, aiming to reduce transportation fuel carbon intensity by 20%. This initiative supports biogas projects from landfills and farms. Similar programs are gaining traction nationwide, influenced by California's successful model. Major waste companies are increasingly investing in renewable natural gas. As more states embrace clean fuel programs, the industry could see significant expansion, attracting attention from both environmentalists and the oil and gas sector. [Read More](#) (Agriculture Dive)

Chart 10: Planned Carbon Intensity Reductions



Source: Intro-act, Agriculture Dive, Stillwater Associates. Note: *California has proposed a steeper carbon intensity reduction pathway in response to a strong credit market. **New Mexico has not yet set its annual reduction pathway, but has a 2030 goal.

Study shows AI could track carbon emissions from farms. Farms globally contribute 25% of greenhouse gases, with agriculture constituting 10% in the US. University of Minnesota researchers propose using AI to track carbon emissions from farms, aiding in understanding and reducing them. Agricultural practices, like plowing, release stored carbon, exacerbating climate change. AI offers promise in accurately monitoring emissions, aiding in targeted carbon reduction efforts. [Read More](#) (Tomorrow's world Today)

Organic agriculture can increase pesticide use on nearby fields. A recent study reveals that organic agriculture increases pesticide use on nearby conventional fields due to higher pest levels. This surprising finding from Kern County, California, highlights unintended consequences of organic farming's expansion. The research suggests clustering organic fields benefits both organic and conventional farmers by reducing overall pesticide use. Despite challenges in

understanding the mechanisms, this approach could enhance agricultural sustainability, particularly as organic production continues to grow globally. [Read More](#) (Future Farming)

Investments in European FoodTech startups are declining, but there are many reasons for hope. European FoodTech startups raised €4.3B in 2023, marking a 35% decrease from 2022 and 56% from the peak in 2021. However, Europe's FoodTech investments declined less than the global average. Europe now represents 32% of worldwide FoodTech investments, up from 14% in 2020. Despite the decrease in funding, there's an increase in the number of deals, particularly in early-stage investments. The UK, France, and Germany remain the top three leaders in FoodTech investments. [Read More](#) (Digital Food labs)

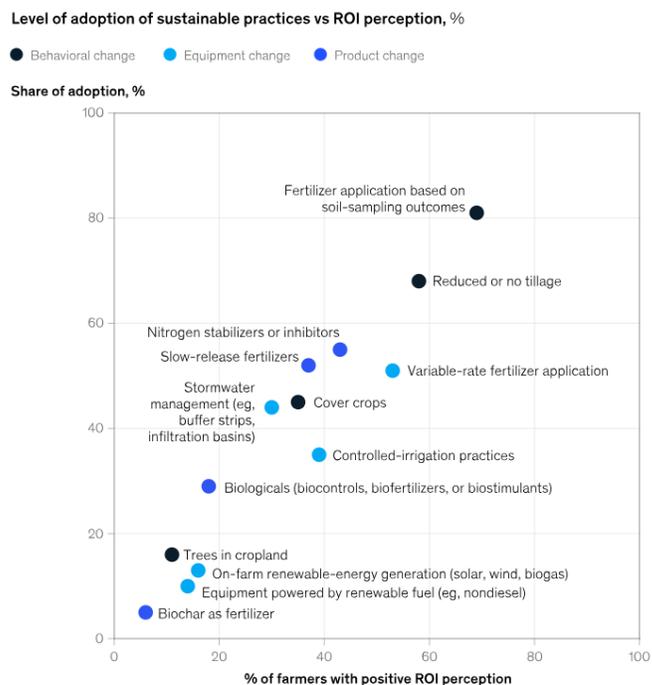
Chart 11: Investments In European FoodTech Startups



Source: Intro-act, Digital Food Labs

Voice of the US farmer 2023–24: farmers seek path to scale sustainably. A McKinsey survey reveals that while 90% of farmers are aware of sustainable-farming practices, full adoption remains low due to insufficient support. Despite challenges like supply chain disruptions, many farmers are investing in sustainability, crucial for meeting environmental goals. However, adoption rates vary, with specialty-crop farmers leading. Farmers cite perceived ROI as a key factor, and government programs drive more adoption than industry initiatives. Industry players can assist by reassessing value distribution, expanding sustainability programs, and investing in education. [Read More](#) (McKinsey)

Chart 12: Farmers are More Likely to Adopt Sustainable Practices that they Perceive to have Positive ROI



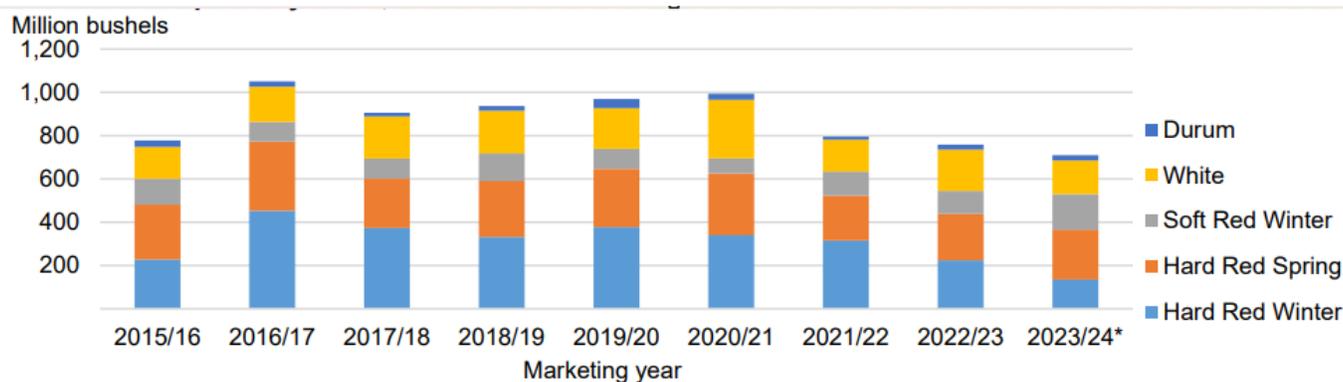
Source: Intro-act, McKinsey US Farmer Plus Survey 2023-24.

South Korea to boost support for vertical farms’ overseas expansion. The South Korean government plans to boost support for advanced agriculture firms, particularly those in "agri-tech" like vertical farms, aiming for international expansion. Ministers Ahn Duk-geun and Song Mi-ryung unveiled the initiative, highlighting its benefits at Plan T Farm, a vertical farming specialist. Vertical farming integrates technologies like ICT, robotics, and AI for automated indoor farming. [Read More](#) (Vertical Farm Daily)

Skills survey reveals U.S. agriculture workforce needs and gaps. AgCareers.com conducted a survey highlighting "Problem-Solving and Decision-Making" as key skills in the agri-food sector. The study emphasizes soft skills' importance, especially for new hires. Employers feel recent graduates lack these skills but find experienced hires better equipped. Soft skills training, particularly in communication, is prioritized for staff development. The report also delves into industry-specific skills like sustainability and data science, emphasizing agronomy and precision agriculture knowledge needs. It outlines skills requisite for different job levels. [Read More](#) (The Packer)

US wheat exports to plunge as China cancels orders. U.S. wheat exports are anticipated to hit record lows due to drought, heightened global competition, and dwindling domestic farms. The USDA slashed annual export estimates by 15 million bushels to 710 million, the lowest since 1971-72. Wheat farms in the U.S. have decreased over 40% since 2002, with farmers favoring more profitable crops like soybeans and corn. Despite fluctuations, wheat production hasn't surpassed 2 billion bushels in seven years. [Read More](#) (Agriculture Dive)

Chart 13: U.S. Wheat Exports by Class, 2015/16-2023/24

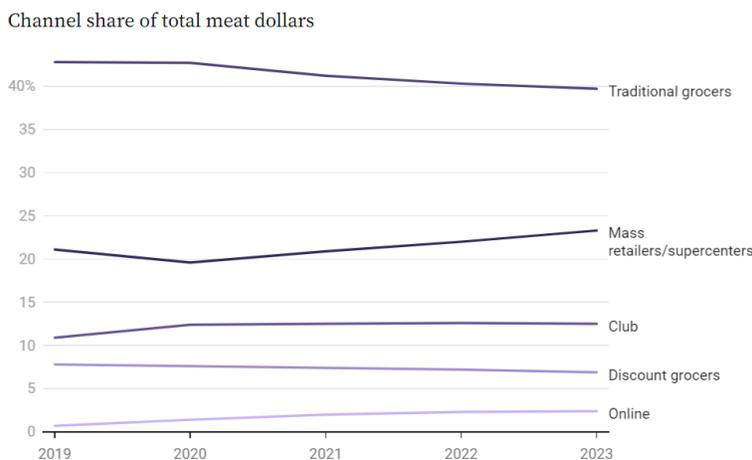


Source: Intro-act, Agriculture Dive, [USDA, World Agriculture outlook Board](#). Note: 2023/24 is a forecast. All other years are final.

Drones and robots could replace some field workers as farming goes high-tech. Fruits and vegetables may soon be tended by drones and robots, driven by AI, as showcased by Hyllo's FAA-approved drone swarm. This technology could revolutionize farming, demonstrated at the World Agriculture Expo. Innovations include robotic tractors and laser weeders, offering solutions to labor shortages. However, concerns arise about job displacement, impacting farm workers like Lulu Cardenas and Asuncion Ponce. Training programs aim to transition workers to new roles, while the government considers aid programs for those affected. [Read More](#) (CBS News)

Grocers lose billions in meat sales as mass retailers gain market share. Millennials are driving the shift to supercenters, impacting traditional grocers' meat sales. According to FMI's report, from 2019 to 2023, supermarkets lost over 3% of their meat sales share, while supercenters gained 2.2%. Despite meat sales leading at \$99 billion in 2023, volume and unit sales decreased compared to 2022. Grocers are urged to enhance value propositions, focusing on factors like quality, price, and consumer perception. [Read More](#) (Agriculture Dive)

Chart 14: Since 2019, Grocers Have Steadily Lost Meat Dollar Share as Other Channels Have Made Gains

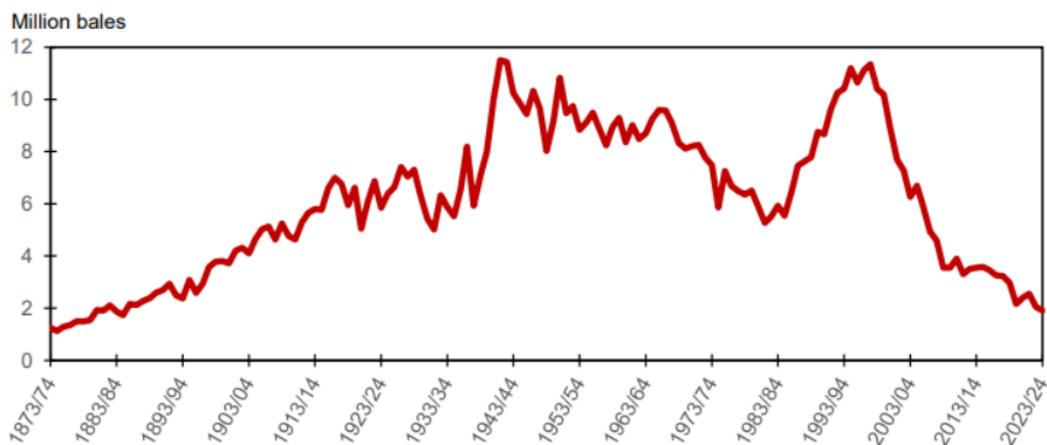


Source: Intro-act, Agriculture Dive, FMI

CRISPR gene editing applications are expanding dramatically in agriculture. Over the past decade, CRISPR-Cas9 has transformed biological research, offering precise genome editing capabilities. Originating from bacterial immune systems, CRISPR acts as molecular scissors directed by RNA, allowing targeted DNA cuts. Its applications span agriculture and healthcare, with gene-edited products like soybean oil and tomatoes hitting the market. CRISPR's future lies in expanding its toolbox through interdisciplinary collaborations, promising further innovations in genome editing technology. [Read More](#) (Genetic Literacy Project)

U.S. cotton mills rapidly closing. Demand for cotton from US manufacturers is plummeting, leading to the closure of mills. Factors like changing trade deals, notably NAFTA, and the exploitation of a tax loophole called de minimis are contributing to this decline. While other industries experience a resurgence in domestic manufacturing, textiles lag behind due to perceived lower importance. Cotton mill usage is projected to hit a historic low, with the majority of US cotton supply being exported, leaving farmers vulnerable to geopolitical shifts. [Read More](#) (Farm Policy News)

Chart 15: US Cotton Mill Use Estimates, 1873/74-2023/24, Projected



Source: Intro-act, USDA, Economic Research Service, World Agricultural Supply and Demand Estimate Reports, farm Policy News. Note: 1 bale=480 pounds. Original running bale data for 1873/74-1950/60 converted to statistical bales using a 1.03 factor.

REGULATORY UPDATES

Corn growers voice disappointment over new EPA mandate. The Biden administration has set national pollution standards for vehicles until 2032, limiting the role of ethanol and biofuels in emissions reduction. Announced by the EPA, the standards mandate increased production of hybrid and electric vehicles. Although allowing leeway for automakers, the regulations reduce the use of biofuels, causing disappointment among agriculture groups. The focus on electric vehicles disregards infrastructure challenges and could harm corn farmers economically. [Read More](#) (AgDaily)

FAA exemption expands drone use in Ag. A new FAA exemption enables 'drone-swarm' agriculture, revolutionizing crop seeding and spraying. Hylio, a Texas-based manufacturer, leads the charge with drones capable of covering 150 acres/hour. The cost advantage over traditional equipment is significant, with drones starting at \$50,000 compared to tractors costing over \$300,000. While the technology addresses labor shortages, concerns about job displacement linger. Nonetheless, the future promises expanded drone capacities and broader agricultural applications, marking just the beginning of a transformative era. [Read More](#) (Farm Policy News)

India working on regulatory framework for cultivated meat & seafood: report. India is establishing regulations for cultivated meat and seafood, following the lead of Japan and South Korea. The FSSAI is formulating these regulations, assessing global standards and working with local startups. The country's significant agricultural and pharmaceutical

sectors provide a solid foundation. Government support includes funding for research projects. Consumer acceptance and economic potential are promising, with projections of significant growth and job creation. [Read More](#) (Green Queen)

Victory for plant-based meat as French Conseil d'Etat suspends labelling decree. The French Conseil d'Etat suspended a decree banning terms like "steak" and "ham" for plant-based products, following requests from plant-based food producers including La Vie, Umiami, Happyvore, and others. The suspension was due to concerns about legality and potential harm to plant-based meat producers. This follows previous attempts to implement such bans in 2022 and 2023, with legal uncertainties surrounding the authority of individual EU member states to enforce such regulations. [Read More](#) (Vegconomist)

Bill proposing legal immunity for pesticide manufacturers advances. The Senate Appropriations Committee passed Senate Study Bill 3188, granting legal protection to pesticide manufacturers against lawsuits related to inadequate health warnings. This bill shields them from civil liability if their products adhere to EPA labeling standards. Notably, Chinese state-owned companies are exempt, impacting Syngenta, owned by ChemChina. Supported by Bayer, the legislation defends against unproven lawsuits, securing farmers' access to specific chemical tools. [Read More](#) (CropLife)

TFI: Phosphate and Potash are critical minerals, senate bill to solidify. The Fertilizer Institute lauded bipartisan U.S. Senate legislation endorsing phosphate and potash as critical minerals. This move aims to ensure a robust domestic fertilizer supply for American farmers. With most of these resources concentrated in few countries, vulnerabilities in the supply chain pose risks. Recognizing their significance for national security and food production, the institute emphasizes the need for proactive measures, including streamlined permitting processes for mining projects. [Read More](#) (CropLife)

Senators introduce farm transition act. A bipartisan bill in the U.S. Senate aims to facilitate farmland ownership transition and overcome current obstacles. Senator Mike Braun highlights the need to prevent farmland from falling into the wrong hands and enable young farmers to enter the industry, with an estimated 370 million acres changing ownership in the next two decades. The Farm Transition Act of 2024 seeks to reauthorize the Commission on Farm Transitions, incentivizing agricultural asset transfers. [Read More](#) (Brownfield News)

France puts forward new agriculture law to protect food sovereignty. France has proposed a draft law focusing on agriculture and food security, covering simplification of systems, environmental practices enforcement, and educational investment. Presented by Marc Fesneau, the bill aims to foster generational renewal, align agriculture with biodiversity, and facilitate faster litigation for new projects. Training programs will target agri-food sectors, while measures will ensure farm continuity and ease of setup. [Read More](#) (Global Data)

CAPITAL MARKETS

Onego Bio poaches \$40m Series A to launch precision-fermented egg protein in North America. Finnish startup Onego Bio secured a \$40M Series A round to launch its animal-free egg protein, Bioalbumen, in North America. Led by NordicNinja, the investment includes government financing. Bioalbumen, produced through precision fermentation, mirrors egg whites' properties without environmental drawbacks. Onego Bio targets regulatory approval soon, anticipating self-affirmed GRAS status. [Read More](#) (Green Queen)

Robovision secures \$42 million funding. European AI firm Robovision recently secured \$42 million in funding led by Target Global and Astanor Ventures, known for supporting high-growth ventures. Astanor's involvement emphasizes Robovision's global impact mission. Red River West, facilitating European firms' US expansion, also contributed. With previous investments totaling \$65 million, Robovision's AI-driven computer vision platform revolutionizes automation processes in 45+ countries, generating over \$250 million in sales. [Read More](#) (Robovision)

BioConsortia secures \$15 million in latest funding round. BioConsortia, a prominent agricultural tech company, recently closed an internal financing round to expand the development of advanced microbial products. These products aim to boost crop yields by fixing nitrogen and controlling pests like nematodes and fungi. With Otter Capital leading the investment, BioConsortia plans to conduct more field trials globally and invest in microbial gene-editing. They also intend

to upgrade their lab facilities to support their growing team and enhance fermentation and formulation capabilities. [Read More](#) (Agribusiness Global)

M&A

Agco finalizes major tech deal with Trimble. Agco Corporation and Trimble have finalized their joint venture, PTx Trimble, combining precision agriculture technology from Trimble with Agco's farm equipment control software. Agco acquired an 85% stake in the venture, aiming to enhance global farming practices with a mixed-fleet precision ag platform. [Read More](#) (Agriculture Dive)

McCain Foods announces acquisition of Irish plant-based frozen food brand Strong Roots. McCain, after initially investing \$55 million in Strong Roots in 2021, has acquired the Ireland-based veg-first food brand. Strong Roots will operate independently with Charlotte Turton leading, while Samuel Dennigan remains involved for innovation. A brand advisory council, including Dennigan, will steer future growth. This move aligns with McCain's aim to enhance frozen food aisles and expand Strong Roots globally, leveraging resources for sustainability and market expansion, as stated by Dennigan and McCain executives. [Read More](#) (Vegconomist)

AgroFresh acquires Pace International LLC, expanding post-harvest solutions portfolio. AgroFresh Solutions, Inc. has acquired Pace International LLC, a provider of post-harvest solutions, expanding its reach in fruit-growing regions across the Americas. This move enhances AgroFresh's ability to offer quality and freshness solutions for perishable crops. The acquisition aims to combine the strengths of both companies to better serve customers in the fresh produce supply chain. Additionally, AgroFresh plans to collaborate with Valent BioSciences to innovate new post-harvest products and services. [Read More](#) (Agritech Tomorrow)

Ever.Ag acquires Adapt-N from Yara North America. Ever.Ag, a leader in agricultural technology, acquires Adapt-N from Yara North America, expanding market access for the premier nitrogen recommendation tool. This move underscores Ever.Ag's commitment to innovation in meeting the agricultural industry's complex needs. The integration of Adapt-N into FieldAlytics aims to optimize nitrogen application. Partnerships with Yara North America reflect dedication to sustainable farming and fostering a resilient agricultural landscape. [Read More](#) (Agritech Tomorrow)

EARNINGS

General Mills reports fiscal 2024 third-quarter results. General Mills reported its fiscal Q3 2024 results with net sales of \$5.1 billion, down 1%. Organic net sales were also down 1%, but on a 2-year compound growth basis, net sales increased 6% and organic net sales rose 7%. Operating profit surged 25% to \$911 million, while adjusted operating profit increased 14% to \$914 million. Diluted EPS jumped 27% to \$1.17. The company reaffirmed its full-year fiscal 2024 outlook, focusing on brand building and innovation for long-term growth. [Read More](#) (Business Wire)

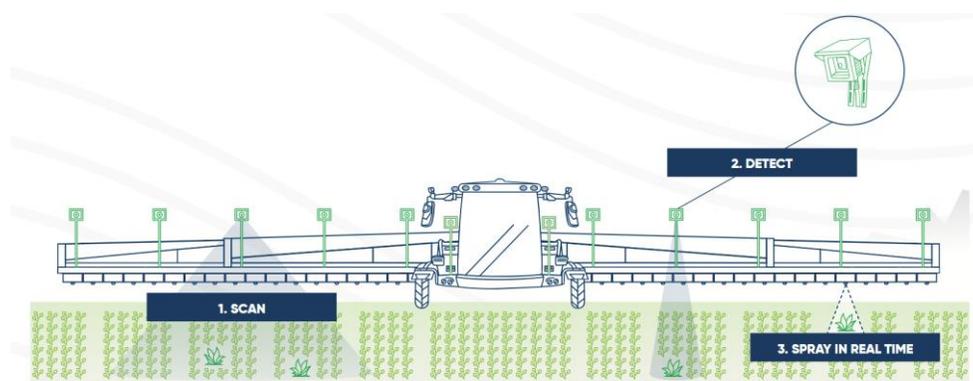
COMPANY NEWS

Corteva launches Corteva Catalyst. Corteva, Inc. unveils Corteva Catalyst, a partnership and investment platform aiming to propel agricultural innovation. The initiative, driven by Corteva's expertise and global reach, collaborates with startups and universities to develop pioneering technologies. Focused on genome editing, biologicals, technology platforms, and decision science, it targets sustainable food production. The initiative's commitment to addressing farmers' challenges and accelerating growth through collaboration and resource sharing. [Read More](#) (Corteva)

Bayer pilots unique generative AI tool for agriculture. Bayer introduces its expert GenAI system, trained by agronomists using proprietary data, to benefit farmers and agronomists. The system quickly provides accurate information on agronomy and Bayer products, significantly improving productivity. Collaborating with Microsoft and EY, Bayer aims to integrate GenAI into its digital offerings, democratizing access to agronomic advice. Additionally, Bayer's AgPowered Services now include a global weather dataset spanning 40 years. [Read More](#) (Bayer)

Trimble's new Bilberry smart spraying system embodies retrofit-first mindset. Trimble introduces Bilberry, a revolutionary spraying technology, leveraging cameras to pinpoint and target weeds, potentially reducing herbicide usage by up to 90%. Unlike many innovations requiring new equipment, Bilberry retrofits onto existing sprayers, minimizing costs for farmers. By integrating with current systems, it streamlines adoption without necessitating a complete overhaul. Trimble aims to make Bilberry available for purchase by late 2024 or early 2025 after testing in 10 countries, including North America. [Read More](#) (Precision Farming Dealer)

Chart 16: Bilberry Smart Spraying System



Source: Intro-act, Company Website

AgBoost scales AI-enabled genetic data analysis software for cattle producers. AgBoost revolutionizes cattle breeding with its AI-enabled genetic data analysis software, aiding ranchers in interpreting genomic data for selective breeding, health, and market value management. The platform, launched after years of development and field testing, combines genomic and production data to empower producers in making faster and more precise decisions. AgBoost's visual interface simplifies complex genomic information, enabling users to identify top-performing animals and plan breeding strategies effectively. [Read More](#) (Agritech Tomorrow)

FMC Corporation expands biologicals crop protection platform in Canada. FMC Corporation is collaborating with Novonosis in Canada to expand its biologicals platform. Starting June 1, 2024, FMC Canada becomes the exclusive distributor of Novonosis' biosolution products for the 2025 growing season. The partnership aims to develop new biological technology for Canadian farmers, utilizing Novonosis' manufacturing site in Saskatoon and FMC's market expertise. Both companies aim to provide effective, sustainable solutions to Canadian farmers, enhancing crop management and yield protection. [Read More](#) (Worldfertilizer)

Egg Innovations is set to introduce In-Ovo technology to help eliminate chick culling practices within the egg industry. Egg Innovations leads the egg industry by implementing in-ovo sexing technology, aiming to end male chick culling. With a focus on animal welfare, they pioneer humane egg production methods, extending their commitment from day-old chicks to pre-hatched eggs. This innovation aligns with their mission of ethical farming, earning recognition and support from industry experts. The move signifies a significant step towards ending chick culling, supported by innovative technologies and a dedication to animal welfare. [Read More](#) (PR Newswire)

Nestlé launches pair of initiatives to decarbonize cocoa supply chain. Nestlé unveils projects with suppliers to cut carbon emissions from cocoa chains, supporting regenerative agriculture and agroforestry. These initiatives in Ghana and Côte d'Ivoire aim to plant over 2 million shade trees, reduce over 500,000 metric tons of carbon, and enhance biodiversity. With a focus on long-term forest protection, Nestlé emphasizes collaboration with suppliers and local communities. Carbon monitoring ensures accountability and permanent carbon removal within the supply chain. [Read More](#) (Agriculture Dive)

AGCO launches PTx, a precision ag portfolio to accelerate technology transformation. AGCO Corporation unveils PTx, a new brand amalgamating Precision Planting and PTx Trimble, enhancing precision ag technologies for farmers and OEMs worldwide. Seth Crawford heads PTx, aiming for seamless, cross-brand integration and farmer-centric solutions. The name signifies precision agriculture and advanced technologies. PTx Trimble, formed through a recent JV, will be led by Andrew Sunderman, focusing on retrofit and factory-fit solutions for farmers. Keith Crow remains GM of Precision Planting. [Read More](#) (CropLife)

Corteva introduces Tolvera™ herbicide with new active ingredient for the cereals market. The U.S. Environmental Protection Agency has approved Tolvera™ herbicide for effective weed control in wheat, durum, and barley crops. Combining tolpyralate and bromoxynil, it targets resistant weeds while offering application flexibility. Tolvera aids crop rotation, providing tank-mix options and control over challenging weeds. Drew Clark of Corteva Agriscience highlights its profitability potential and plant-back rotation benefits. [Read More](#) (Corteva)

Rantizo launches AcreConnect software. Rantizo's General Manager has unveiled AcreConnect, a new software facilitating spray drone operations. It enables operators to generate work orders, product reports, and maps, enhancing efficiency. Tested in a beta program with real operators, it garnered positive feedback for time-saving features. Accessible on both phones and laptops, AcreConnect streamlines job management, billing, and compliance data collection. [Read More](#) (CropLife)

ProducePay launches visibility solution to improve transparency and reduce waste in fresh produce supply chain. ProducePay introduces a Visibility solution, enhancing transparency and reducing waste in the fresh produce supply chain. This enables buyers to track produce shipments from farms to final destinations, ensuring high-quality deliveries and cutting rejection rates by up to 80%. By combining technology and agronomy, ProducePay empowers growers and buyers, offering real-time monitoring, order tracking, and end-to-end visibility. [Read More](#) (Business Wire)

Cox Enterprises launches Cox Farms, one of the largest greenhouse growers in North America. Cox Enterprises launches Cox Farms, a sustainable food and agriculture business, reaffirming its \$2 billion commitment to sustainability. Cox Farms includes indoor farming ventures Mucci Farms and BrightFarms, aiming to revolutionize agriculture. With a history dating back 125 years, Cox Enterprises pioneers indoor farming, yielding 360 million pounds of produce annually. Cox Farms prioritizes innovation, quality, and sustainability. [Read More](#) (PR Newswire)

ADAMA launches new multi-crop, broad spectrum fungicide Maxentis for improved disease control and increased yield. ADAMA Ltd. introduces Maxentis®, a versatile fungicide catering to wheat, barley, and oilseed rape farmers. It effectively controls various diseases, offering convenience and cost-effectiveness. With two action modes, it targets multiple growth stages of fungal diseases, ensuring healthier crops and increased yields. Maxentis® simplifies spray programs, reducing complexity and costs for farmers. Its flexibility and reliability meet the demand for broad-label products, promising higher yields with less hassle. Launching across Europe, UK, and Ireland in 2024. [Read More](#) (PR Newswire)

IdeeLab joins the Ginkgo Technology Network to provide agriculture companies in Brazil with end-to-end product development & manufacturing service. IdeeLab Biotechnology, a Brazilian company specializing in agricultural innovations, has teamed up with Ginkgo Bioworks to join its Technology Network. This collaboration aims to boost R&D efforts in biological solutions for agriculture. IdeeLab's expertise in sustainable agriculture complements Ginkgo's cell engineering capabilities. Together, they will provide end-to-end solutions in Brazil, from discovery to manufacturing, facilitating the development of advanced biocontrol products. [Read More](#) (BioAg World)

Godrej Agrovet launches new pesticide Hanabi for apple farmers in India. Godrej Agrovet Limited launches Hanabi, a potent pesticide developed with Nissan Chemical Corporation to combat mites in Kashmir's vital apple orchards. Rajavelu NK, CEO of Godrej Agrovet, emphasizes Hanabi's efficacy in sustaining apple production, citing its rapid knockdown effects and extended control duration. Hanabi's formula boasts an 80% knockdown rate within 3-4 hours and secondary efficacy against thrips and whiteflies. Early intervention at 3-5 mites per leaf is advised for optimal results. [Read More](#) (Agribusiness Global)

VVDN's Intelligent Cloud Engine (ICE) goes live on Google Cloud Marketplace. VVDN Technologies launched ICE, a Smart IoT Cloud Platform, on Google Cloud Marketplace. ICE offers data management, analytics, and visualization, integrating with Generative AI for future solutions. It serves various sectors like Video Surveillance, Automotive, and Health Tech. Built on Google Cloud's secure architecture, ICE ensures data privacy and compliance. VVDN's partnership with Google Cloud aims to provide global customer support and innovate in the AI era. Google Cloud Marketplace facilitates quick deployment and growth of ICE. [Read More](#) (VVDN Tech)

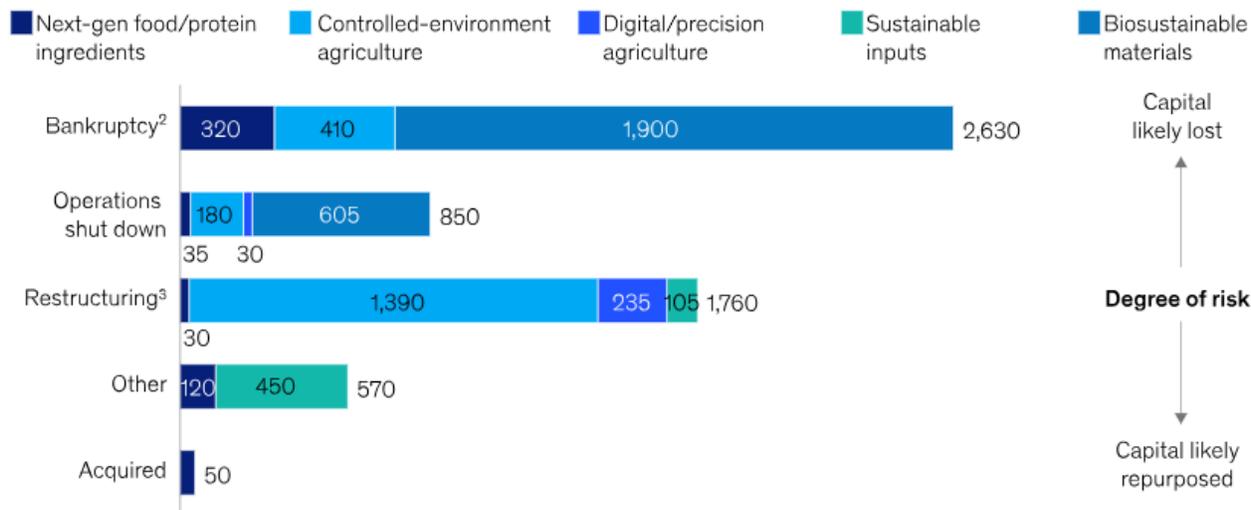
GroGuru launches world's first fully integrated wireless underground system soil sensor probe for continuous root zone monitoring of annual field crops. GroGuru introduces a pioneering capacitance probe in partnership with AquaCheck, integrating GroGuru® WUGS technology, extending battery life to 10 years and simplifying installation. This breakthrough allows continuous root zone monitoring, aiding farmers in precise irrigation decisions. The technology, coupled with GroGuru® InSites, an AI-driven recommendation engine, enhances water efficiency, boosts crop yields, and reduces costs. The product is available nationwide, offering farmers a comprehensive solution for agricultural management. [Read More](#) (PR Web)

Meatly unveils the world's first cultivated chicken pet food. Meatly, a pioneer in cell-cultivated meat, unveils the world's inaugural cans of pet food featuring cultivated chicken as the protein source. With £3.6 million in funding, Meatly focuses on producing high-quality, GMO-free meat from chicken cells. Partnering with Omni, they aim to address regulatory challenges and meet the escalating demand for sustainable pet food. Pets at Homeplans intends to be the first retailer to offer Meatly's products, supporting the shift towards environmentally friendly alternatives in the pet food industry. [Read More](#) (Tech EU)

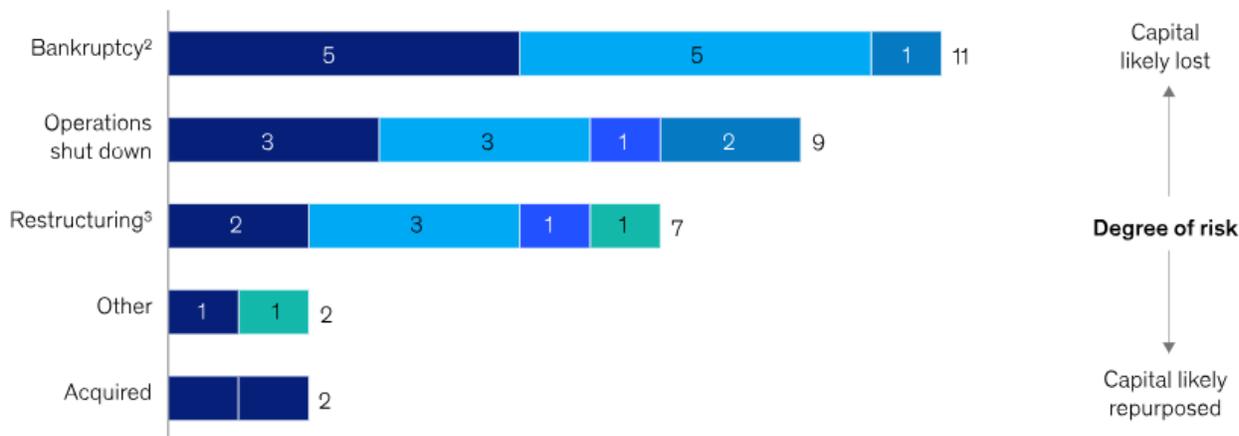
AGTECH CHART OF THE MONTH

Chart 17: Agricultural Technology Drought Puts ~\$6 Billion Worth of Investments at Risk of Being Lost

Capital invested by start-ups across sectors, and the degree of risk to capital,¹ \$ million (n = 31)



Number of start-ups across sectors, and the degree of risk to capital,¹ (n = 31)



Source: Intro-act, McKinsey, [Seizing opportunities amid the Agtech capital drought](#). Note: 1) Companies Analyzed on a 18 month rolling basis. 2) Amyris bankruptcy accounts for \$1.9 billion. 3) Includes companies that went private or went into receivership with layoffs as only end result of capital lost.

COMMODITIES DASHBOARD

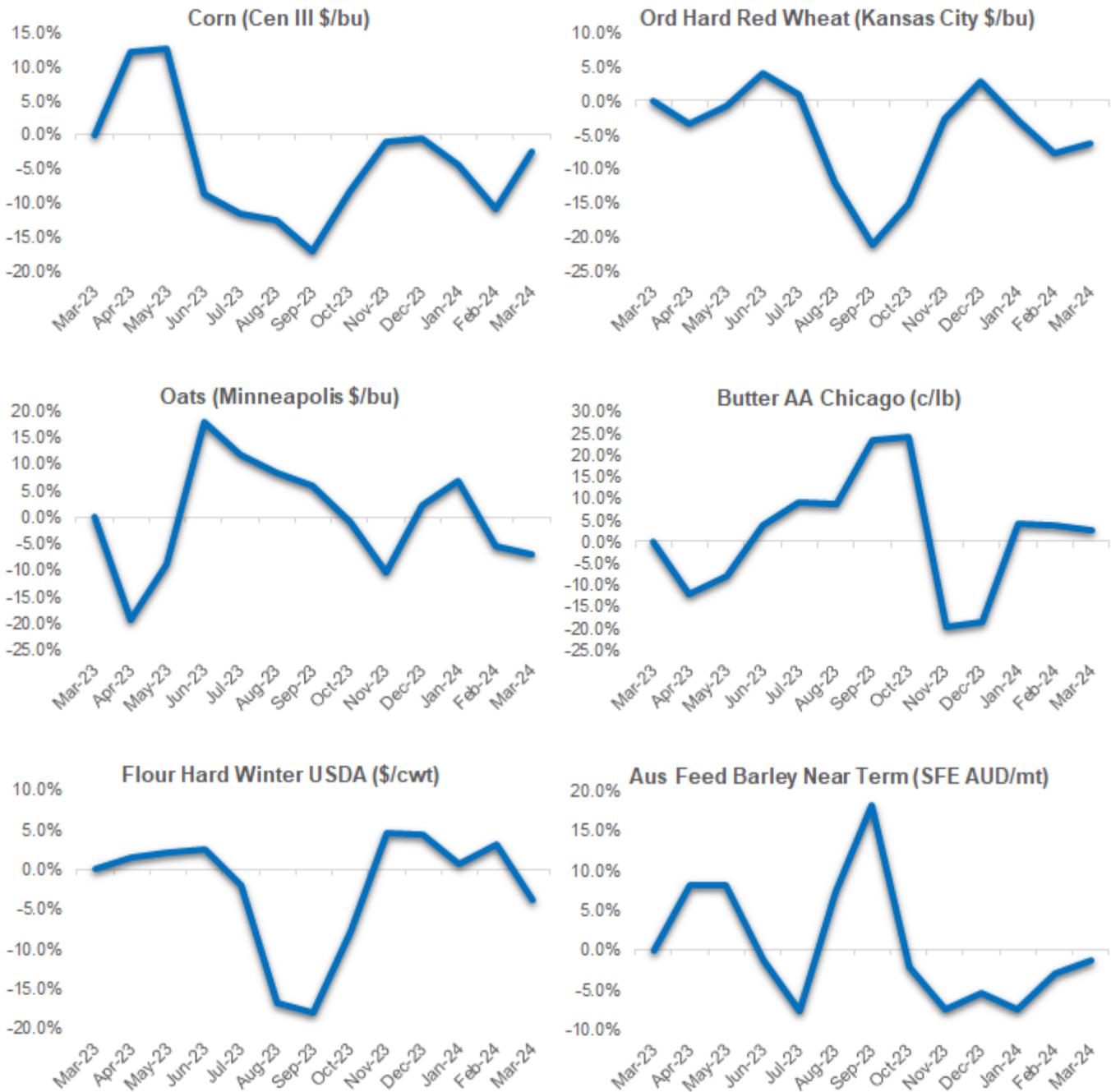
AGRICULTURAL COMMODITIES MARKETS

Chart 18: Agricultural Commodities Price Returns

Agricultural Commodities	Price as of 4/01/24	1M	3M	6M	1Y	YTD
Grains						
Corn (Cen Ill \$/bu)	4.30	▲ 4.69%	▼ -6.38%	▼ -7.98%	▼ -23.17%	▼ -6.38%
Corn (St. Louis Miss R \$/bu)	4.53	▲ 3.25%	▼ -4.48%	▲ 1.97%	▼ -18.60%	▼ -4.48%
Ord Hard Red Wheat (Kansas City \$/bu)	5.63	▼ -1.70%	▼ -9.16%	▼ -11.55%	▼ -29.24%	▼ -9.16%
Soft Red Wheat (St. Louis Miss R \$/bu)	5.60	▼ -6.70%	▼ -11.49%	▲ 22.33%	▼ -7.74%	▼ -11.49%
Dns/Ns Wheat 14 (Minneapolis \$/bu)	7.70	▼ -2.47%	▼ -16.63%	▼ -7.76%	▼ -21.14%	▼ -16.63%
Oats (Minneapolis \$/bu)	4.12	▼ -4.41%	▼ -9.60%	▼ -10.92%	▼ -5.56%	▼ -9.60%
Butter AA Chicago (c/lb)	284.25	▲ 2.80%	▲ 6.66%	▼ -13.86%	▲ 6.06%	▲ 6.66%
Flour Hard Winter USDA (\$/cwt)	17.45	▼ -3.59%	▼ -0.57%	▲ 0.87%	▼ -16.71%	▼ -0.57%
Aus Feed Barley Near Term (SFE AUD/mt)	294.50	▼ -1.34%	▼ -4.23%	▼ -15.49%	▲ 0.34%	▼ -4.23%
Softs						
Cocoa Ivory Coast New York (\$/mt)	9741.00	▲ 50.65%	▲ 131.93%	▲ 184.99%	▲ 174.55%	▲ 131.93%
Coffee Brazilian New York (c/lb)	191.36	▲ 3.22%	▼ -1.97%	▲ 28.65%	▲ 20.49%	▼ -1.97%
Coffee Colombian New York (c/lb)	217.53	▲ 5.59%	▼ -0.96%	▲ 21.16%	▲ 14.42%	▼ -0.96%
Sugar #11 World Raw New York (c/lb)	22.51	▲ 3.73%	▲ 9.86%	▼ -14.31%	▼ -6.64%	▲ 9.86%
Oils and Oil Seeds						
Corn Oil Food Grade (Degummed) Central US FOB-R (\$/ton)	52.00	▲ 0.00%	▲ 0.00%	▲ 0.00%	▲ 0.00%	▲ 0.00%
Soybean Oil Illinois FOB-T/R (c/lb)	47.31	▲ 7.89%	▼ -6.06%	▼ -21.07%	▼ -34.15%	▼ -6.06%
Livestock						
Broilers Composite Average 12-City (c/lb)	131.16	▲ 3.89%	▲ 3.32%	▲ 12.96%	▲ 14.69%	▲ 3.32%
Eggs Large White USDA (c/Dozen)	239.50	▼ -21.60%	▲ 9.11%	▲ 105.58%	▲ 114.80%	▲ 9.11%
Hogs Lean/Average Iowa/S Minn Lean Hog Index (c/lb)	84.25	▲ 4.98%	▲ 29.52%	▼ -0.69%	▼ -20.44%	▲ 29.52%
Pork Bellies Frozen 12-14 lbs. Chicago/Midwest (c/lb)	154.98	▼ -4.20%	▲ 36.76%	▼ -10.26%	▼ -42.79%	▲ 36.76%
Feeder Cattle Near Term (CME \$/lbs)	2.48	▼ -0.50%	▲ 11.45%	▼ -1.87%	▲ 0.88%	▲ 11.45%
Dairy						
Cheese Barrels CME (c/lb)	1427.50	▼ -13.48%	▲ 1.96%	▼ -3.55%	▼ -23.66%	▲ 1.96%
Cheese Blocks CME (c/lb)	1417.50	▼ -11.68%	▼ -3.57%	▼ -17.59%	▼ -27.68%	▼ -3.57%
Grade A Nonfat Dry Milk Chicago USDA (\$/lb)	1.12	▼ -5.88%	▼ -4.27%	▼ -5.49%	▼ -2.40%	▼ -4.27%

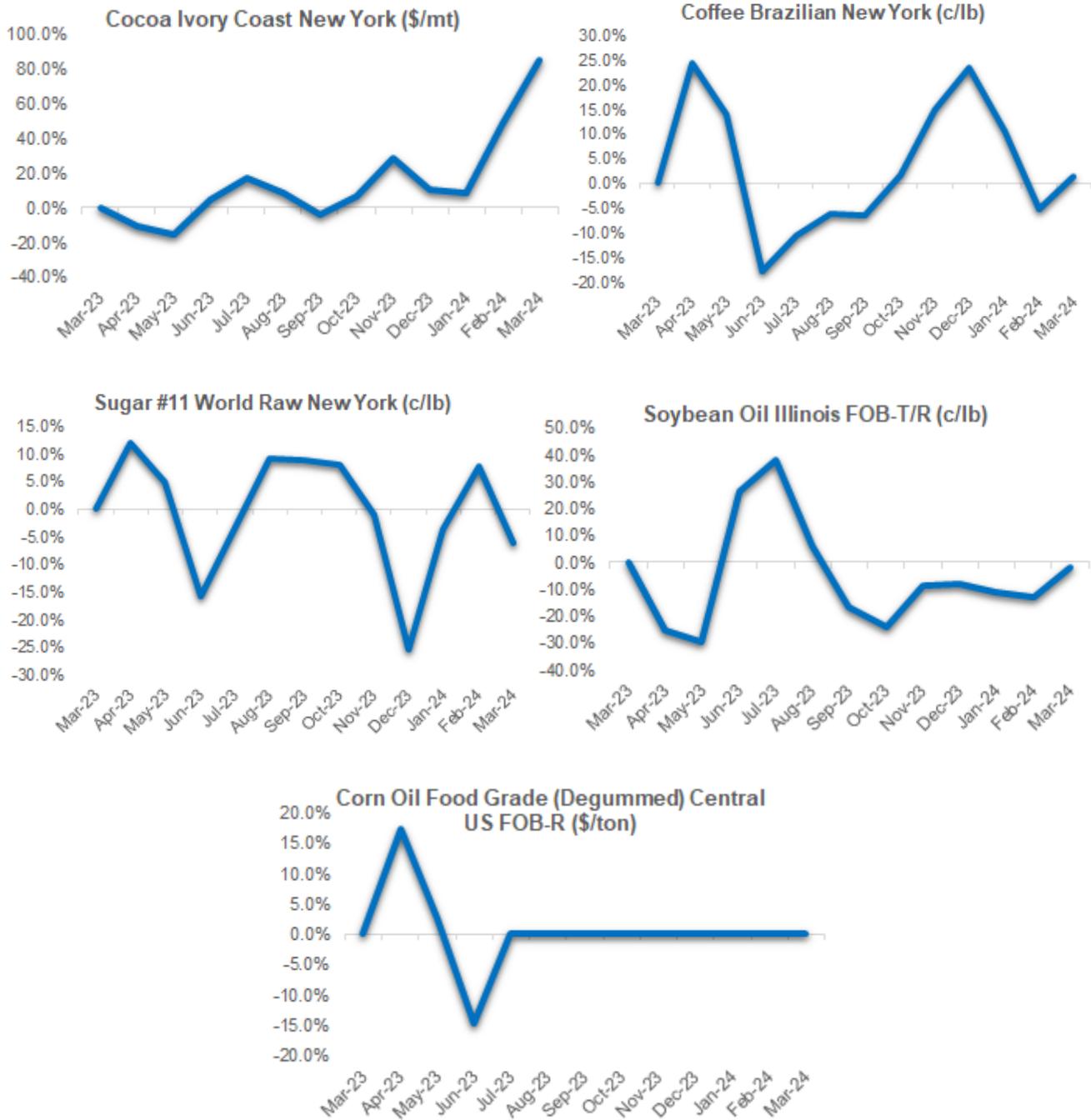
Source: Intro-act, FactSet. Data as of 04/01/2024

Chart 19: Indexed Change in Grain Prices Last 12 Months



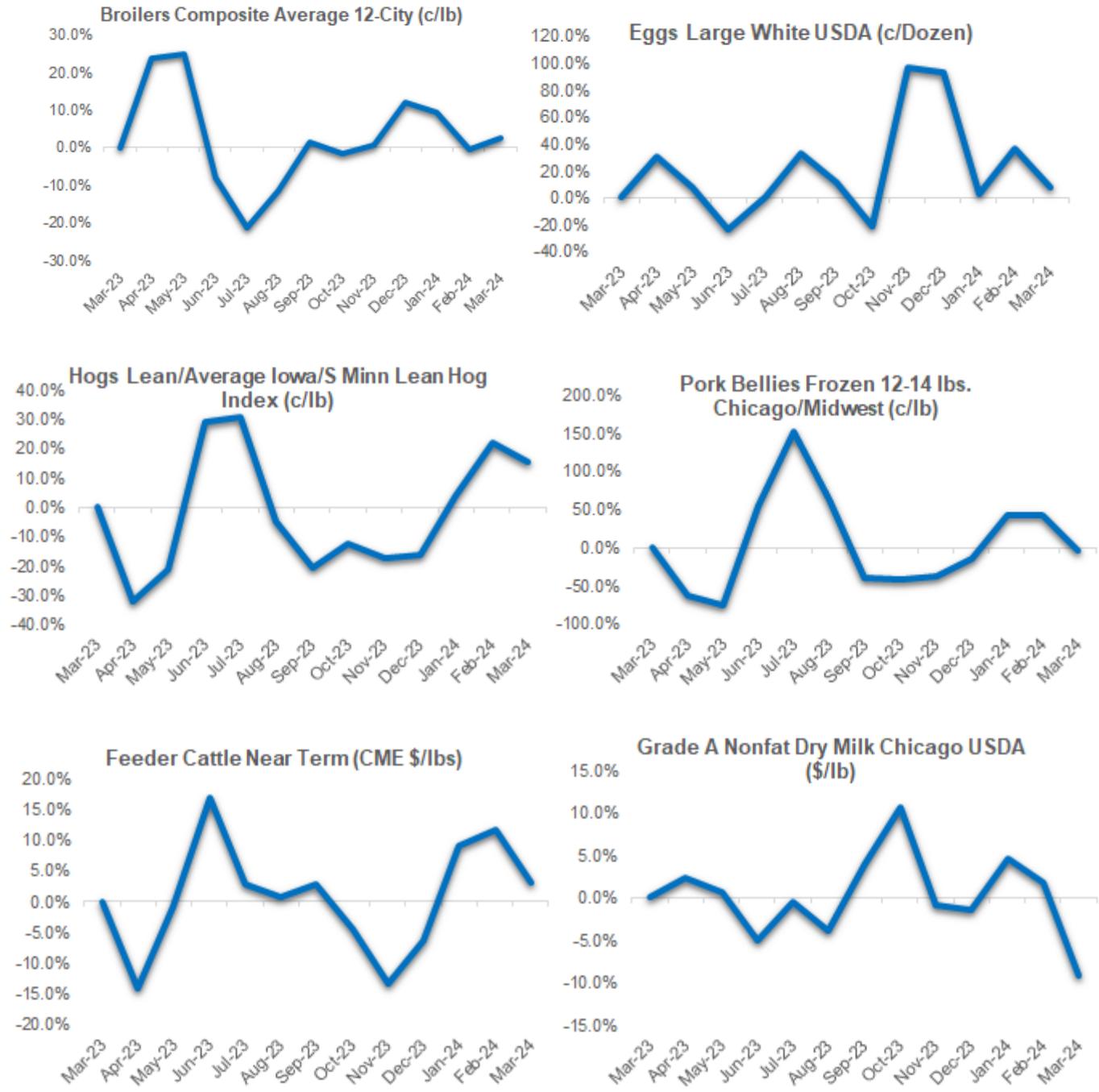
Source: Intro-act, FactSet. Data as of 04/01/2024

Chart 20: Indexed Change in Softs and Oil Seeds Prices Last 12 Months



Source: Intro-act, FactSet. Data as of 04/01/24.

Chart 21: Indexed Change in Livestock and Dairy Prices Last 12 Months



Source: Intro-act, FactSet. Data as of 04/01/2024

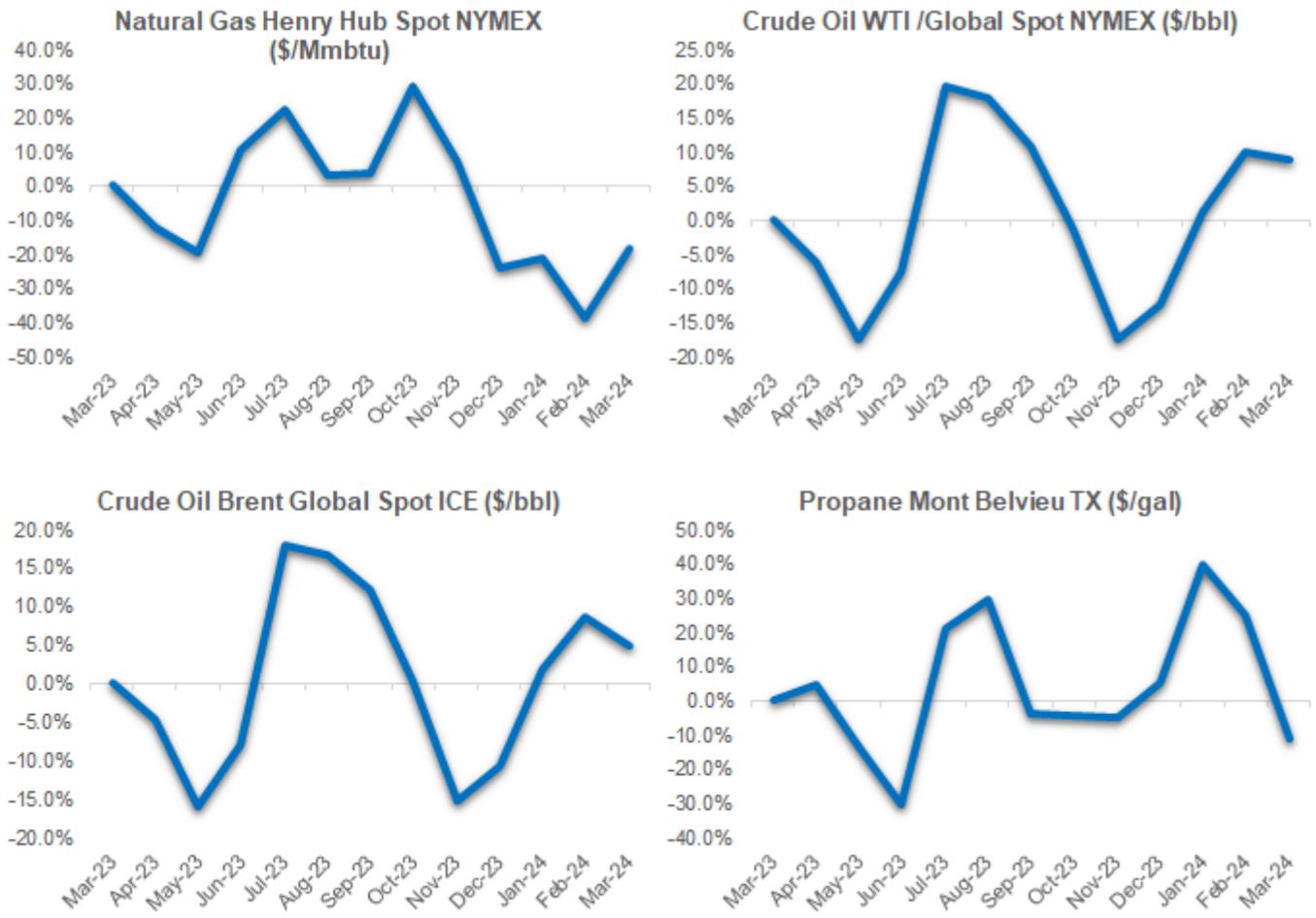
ENERGY COMMODITIES MARKETS

Chart 22: Energy Commodities Price Returns

Energy Commodities	Price as of 4/01/24	1M	3M	6M	1Y	YTD
Natural Gas and Crude Oil						
Natural Gas Henry Hub Spot NYMEX (\$/Mmbtu)	1.76	▲ 5.39%	▼ -31.78%	▼ -34.33%	▼ -31.78%	▼ -31.78%
Crude Oil WTI /Global Spot NYMEX (\$/bbl)	83.15	▲ 4.96%	▲ 15.66%	▼ -8.39%	▲ 1.65%	▲ 15.66%
Crude Oil Brent Global Spot ICE (\$/bbl)	87.00	▲ 2.87%	▲ 11.98%	▼ -9.24%	▲ 2.09%	▲ 11.98%
Propane Mont Belvieu TX (\$/gal)	0.83	▼ -2.70%	▲ 18.74%	▲ 19.77%	▲ 14.80%	▲ 18.74%
Refined Products						
Gasoline Conv Regular NY Harbor (\$/gal)	2.56	▲ 6.90%	▲ 18.34%	▼ -7.73%	▼ -11.56%	▲ 18.34%
Diesel No. 2 Low Sulfur NY Harbor (\$/gal)	2.68	▲ 0.22%	▲ 5.69%	▼ -20.20%	▼ -10.68%	▲ 5.69%
Heating Oil No. 2 NY Harbor (\$/gal)	2.60	▲ 0.23%	▲ 6.38%	▼ -19.35%	▼ -7.47%	▲ 6.38%
Jet Fuel Kerosene-Type U.S. Gulf Coast (\$/gal)	2.58	▲ 1.21%	▲ 9.22%	▼ -18.31%	▼ -9.69%	▲ 9.22%
Gasoil Near Term (IFEU \$/mt)	817.00	▼ -1.18%	▲ 8.82%	▼ -18.42%	▼ -6.87%	▲ 8.82%
Ethanol Iowa (CRB \$/gallon)	1.46	▲ 2.83%	▼ -9.96%	▼ -36.04%	▼ -40.37%	▼ -9.96%
WTI USG 3:2:1 Crack Spread	26.31	▲ 4.57%	▲ 35.42%	▼ -11.28%	▼ -37.33%	▲ 35.42%

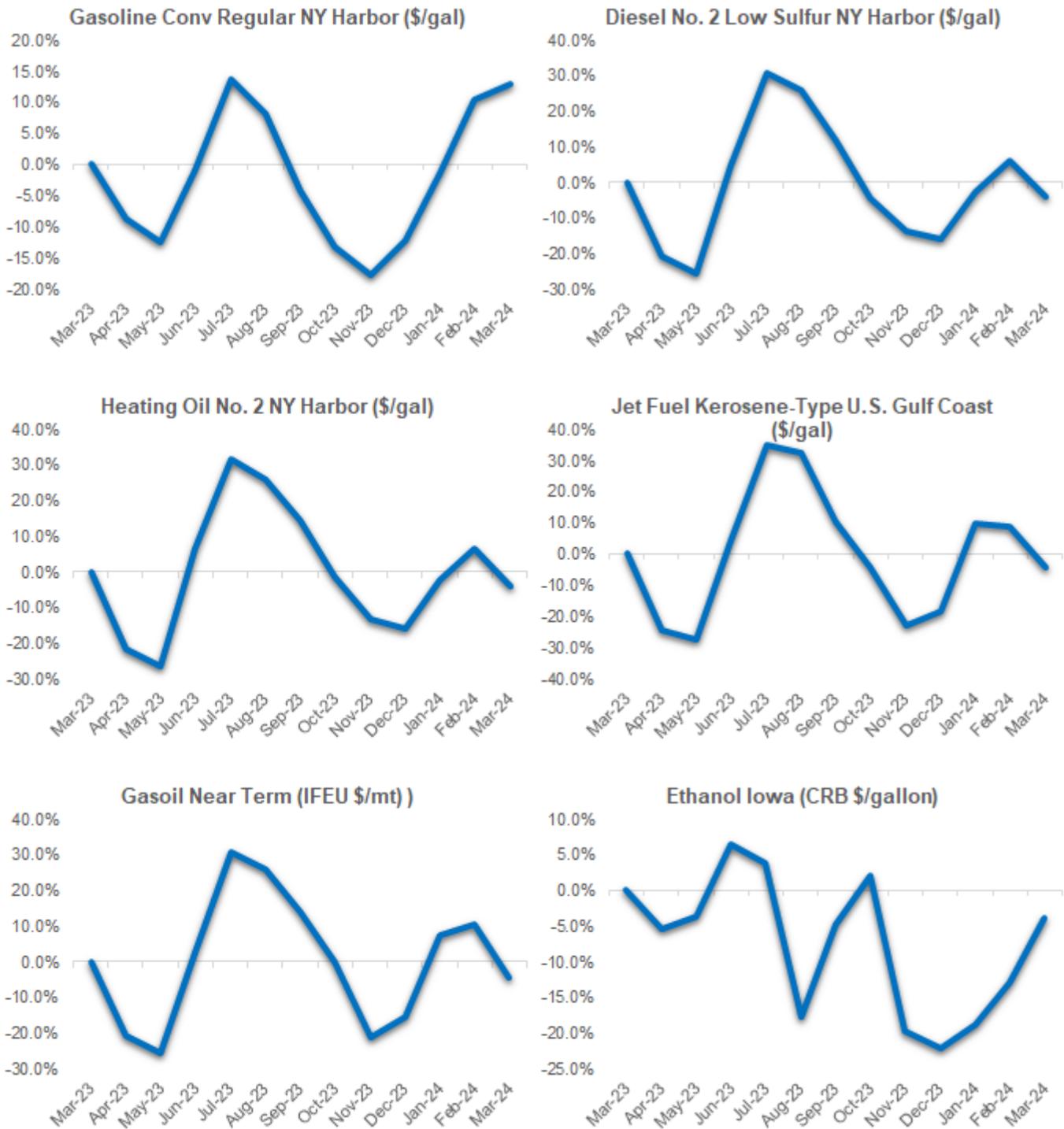
Source: Intro-act, FactSet. Data as of 04/01/2024

Chart 23: Indexed Change in Oil and Gas Prices Last 12 Months



Source: Intro-act, FactSet. Data as of 04/01/2024

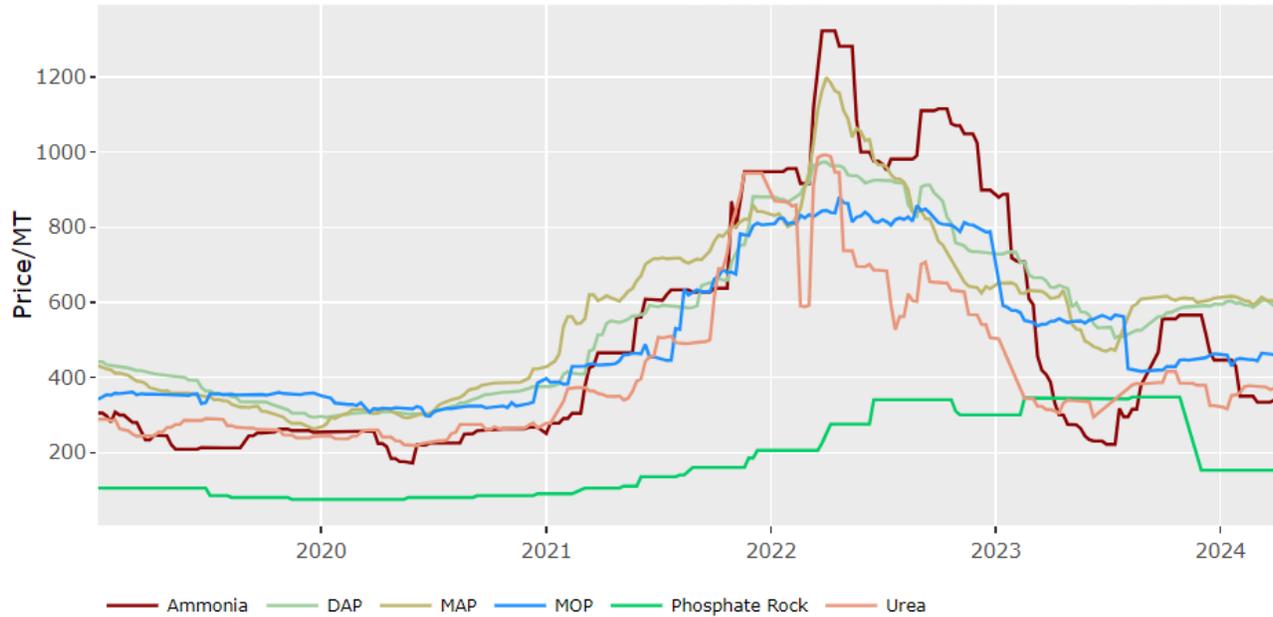
Chart 24: Indexed Change in Refined Fuel Prices Last 12 Months



Source: Intro-act, FactSet. Data as of 04/01/2024

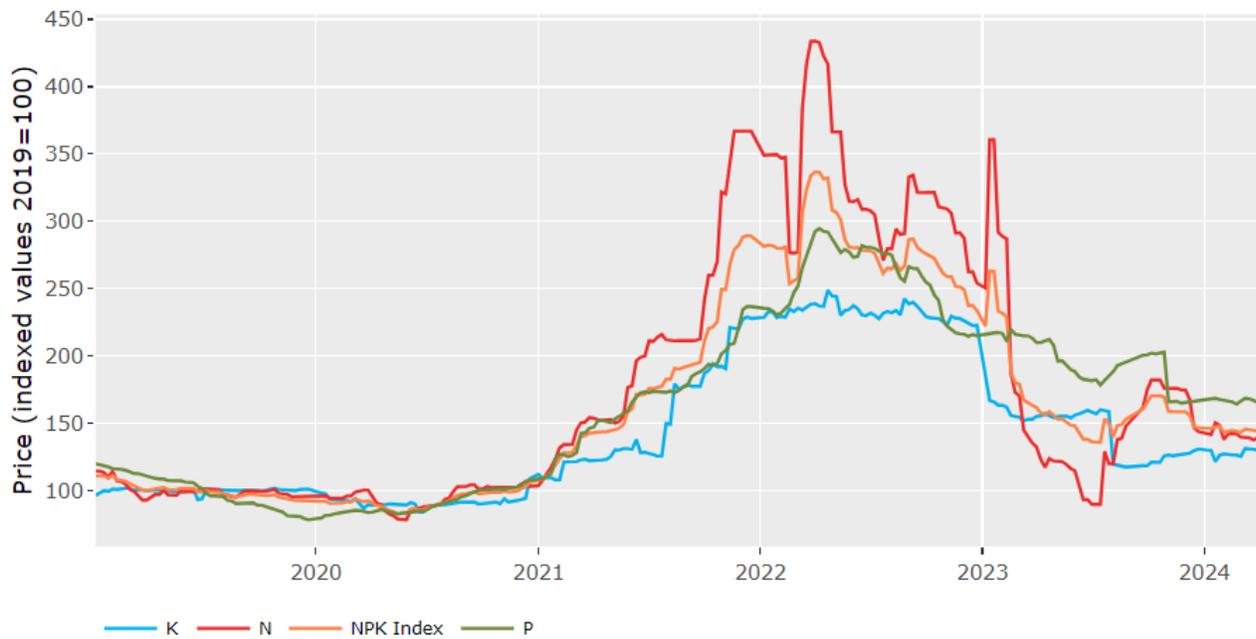
FERTILIZER MARKETS

Chart 25: Prices by Fertilizer Type (As of April 15, 2024)



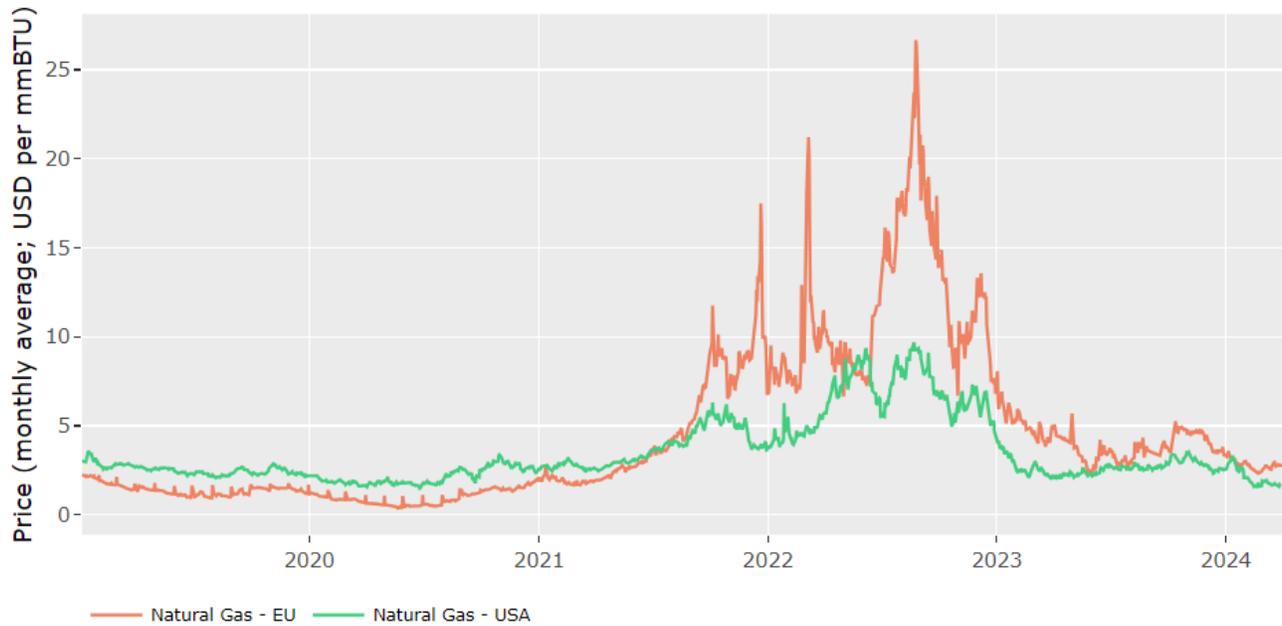
Source: Intro-act, Food Security Portal, Bloomberg

Chart 26: Prices by Nutrient (As of April 15, 2024)



Source: Intro-act, Food Security Portal, Bloomberg

Chart 27: Input Prices - Natural Gas (As of April 15, 2024)



Source: Intro-act, Food Security Portal, NY Mercantile, ICE

AGTECH CAPITAL MARKET ACTION (MARCH 2024)

M&A Activity

Target	Target Industry	Target Country	Acquirer	Deal Size	Announcement Date
Agiboo BV	IT Services and IT Consulting	Netherlands	Cultura Technologies	-	18-Mar-24
CattleEye	Farming	United Kingdom	GEA	-	20-Mar-24
Gro-Power	-	-	Huma	-	25-Mar-24
Proagrica	Farming	United Kingdom	TELUS	-	26-Mar-24
DycodeX	IT Services and IT Consulting	Indonesia	EFishery	-	28-Mar-24
Pace International LLC	Chemical Manufacturing	Washington	AgroFresh	-	30-Mar-24
Elektravon Tuinbouw	Appliances, Electrical	Netherlands	Stolze	-	5-Apr-24
Shy Tiger	Food & Beverages	India	Ghost Kitchens	-	10-Apr-24
AgBiome	Biotechnology Research	United States	Ginkgo Bioworks	-	11-Apr-24

Source: Intro-act, FactSet

PE/ VC Funding Activity

Company	Funding Round	Fund raised (\$m)	Investors	Date
Bear Robotics	Series-C	60.0	LG Electronics	12-Mar-24
KAS	Series A2	3.0	S2G Ventures	14-Mar-24
Locus Fermentation Solutions	-	30.0	-	14-Mar-24
AndFoods	Seed	2.7	Icehouse Ventures	15-Mar-24
Jumbotail	-	18.0	-	18-Mar-24
Poseidona	Pre-seed	0.9	Faber, Dozen Investments, Sprout & About, Proveg International, WA4STEAM	18-Mar-24
Cauldron	-	9.5	Horizons Ventures, SOSV, In-Q-Tel (IQT), Main Sequence	20-Mar-24
Dryad Networks	-	5.1	-	21-Mar-24
Profluent	-	35.0	Spark Capital, Insight Partners, Air Street Capital	21-Mar-24
Nukoko	Seed	1.5	Oyster Bay Venture Capital, SOSV, The Mills Fabrica	22-Mar-24
Proxy Foods	Seed	2.3	Ted Leonsis, CAVA's Ike Grigoropoulos, Ted Xenohristos, Dimitri Moshovitis, Anthony Nader, Fredrick Schaufeld, Robert G. Hisaoka, Richard Ware	22-Mar-24
MyGug	Seed	8.2	BVP, Enterprise Ireland	25-Mar-24
Arevo	-	6.0	Industrifonden, Navigare Ventures, Fort Knox, Stora Enso, Kempestiftelserna	26-Mar-24
Chiyo	-	3.0	Bread & Butter Ventures, Ingeborg, Union Heritage Ventures, Peterson Ventures, Detroit Venture Partners, Palette Ventures, The Helm	26-Mar-24
Agteria Biotech	Pre-seed	1.3	Norrskan Launcher	27-Mar-24
Elevate Foods	Pre-seed	0.5	Wavemaker Impact	27-Mar-24
Innocent Meat	-	2.7	Venture Capital Fonds MV	27-Mar-24
Kamereo	Pred-series B	2.1	Reason Holdings, Thoru Yamamoto, Quest Ventures	27-Mar-24
SuperK	Series A	6.0	Blume Ventures	27-Mar-24
WASE	-	9.0	Hitachi Ventures, WEPA Ventures, WEPA, Engie New Ventures, Engie, Elbow Beach Capital, Empirical Ventures	27-Mar-24
Shicken	-	3.6	Veg Capital	28-Mar-24
Bambrew	Series A	7.2	Blume Ventures, Blue Ashva Capital, Capital-A, Mumbai Angels	1-Apr-24
Orchard Robotics	Seed	3.8	General Catalyst, Contrary	1-Apr-24
BioConsortia	-	15.0	Otter Capital	2-Apr-24
Onego Bio	Series A	40.0	NordicNinja, Agronomics, Maki.vc, Holdix, Turret	2-Apr-24
Pollen Systems	-	2.4	-	2-Apr-24
Ammobia	Seed	4.2	Starlight Ventures, Collaborative Fund, Chevron Technology Ventures, Plug & Play	3-Apr-24
BurnBot	-	20.0	ReGen Ventures, Toyota Ventures, AmFam Ventures, Convective Capital, Blue Forest Asset Management,	3-Apr-24

			Skip Capital, Overture Ventures, Lowercarbon Capital, Pathbreaker Ventures	
Seso	Series B	26.0	Mary Meeker, Index Ventures, NFX, SV Angels	3-Apr-24
WasteX	-	0.4	P4G Partnerships	3-Apr-24
Ironic Biotech	Pre-seed	0.9	Nordic Foodtech VC	4-Apr-24
Milkman	Seed	0.7	Alianza Team, Oost NL, SHIFT Invest, Oterap	4-Apr-24
TerraClear	-	15.0	Madrona Venture Group	5-Apr-24
Liberation Labs	Series A	12.5	Agronomics, Siddhi Capital	8-Apr-24
Windfall Bio	Series A	28.0	Prelude Ventures, Amazon's Climate Pledge Fund, Global Brain, Incite Ventures, Positive Ventures, B37 Ventures, Breakthrough Energy Ventures, Mayfield, UNTITLED	8-Apr-24
Reshape Biotech	Series A	20.0	YC, R7, ACME, 21stBio, Nicholas Francis	9-Apr-24
Torg	Seed	2.5	Connect Ventures, FoodLabs, Sondo, Ventures Together, Sameer Singh, Jonas Meynert	9-Apr-24
Weenat	Series C	7.7	ECBF, Pymwymic, LIBERSET, IDIA Capital Investissement	9-Apr-24
Successful	Series A	6.2	Hatch's Blue Revolution Fund	10-Apr-24

Source: Intro-act

AGTECH INSTITUTIONAL INVESTOR LEAGUE

Chart 28: Agtech Institutional Owners League (Current)

Rank	Institution Name	Invested in Agtech (\$)	Q/Q Change (\$)	# Agtech Positions	% of Instit Ownership
1	The Vanguard Group, Inc.	244,031,661,529	(15,071,000,028)	703	11.1%
2	BlackRock Fund Advisors	135,487,818,960	(9,487,915,772)	667	6.2%
3	SSgA Funds Management, Inc.	108,087,959,804	(5,719,542,865)	712	4.9%
4	Geode Capital Management LLC	53,635,772,781	(2,624,790,295)	675	2.4%
5	Wellington Management Co. LLP	50,684,168,048	(6,436,595,107)	304	2.3%
6	Norges Bank Investment Management	39,332,019,760	38,319,945,580	460	1.8%
7	Capital Research & Management Co. (World Investors)	33,800,826,783	(3,042,757,430)	138	1.5%
8	T. Rowe Price Associates, Inc. (Investment Management)	33,339,194,643	(81,598,288)	303	1.5%
9	Fidelity Management & Research Co. LLC	28,970,957,201	(1,563,934,649)	474	1.3%
10	State Farm Investment Management Corp.	27,466,264,170	(1,117,668,394)	37	1.3%
11	Charles Schwab Investment Management, Inc.	26,877,854,857	184,025,830	596	1.2%
12	BlackRock Investment Management (UK) Ltd.	26,555,278,848	(1,792,864,327)	523	1.2%
13	Northern Trust Investments, Inc.(Investment Management)	26,389,934,600	(1,678,644,738)	645	1.2%
14	BlackRock Advisors (UK) Ltd.	23,792,320,115	(1,572,057,685)	593	1.1%
15	Capital Research & Management Co. (International Investors)	17,886,177,354	(1,923,847,075)	84	0.8%
16	Dimensional Fund Advisors LP	17,293,029,048	(1,378,479,151)	632	0.8%
17	AllianceBernstein LP	15,446,234,394	(2,161,306,231)	473	0.7%
18	Managed Account Advisors LLC	15,396,735,208	(773,233,780)	258	0.7%
19	Massachusetts Financial Services Co.	14,730,623,272	(1,775,222,801)	145	0.7%
20	Legal & General Investment Management Ltd.	14,700,138,076	(1,426,357,346)	558	0.7%
21	JPMorgan Investment Management, Inc.	13,980,956,323	(1,505,019,637)	451	0.6%
22	Morgan Stanley Smith Barney LLC (Investment Management)	13,656,116,884	(1,161,694,368)	409	0.6%
23	Columbia Management Investment Advisers LLC	11,861,019,444	(1,380,291,632)	386	0.5%
24	UBS Asset Management Switzerland AG	11,630,670,514	(309,599,988)	463	0.5%
25	Goldman Sachs Asset Management LP	11,596,983,821	(509,178,951)	521	0.5%
	Others	1,179,576,576,746	(70,574,900,324)	275,327	53.7%
	TOTAL	2,196,207,293,183	(96,564,529,452)	286,537	100.0%

Source: Intro-act, 13F Filings

Chart 29: Top 25 Agtech Buyers (Q/Q)

Rank	Institution Name	Invested in Agtech (\$)	Q/Q Change (\$)	# Agtech Positions	% of Instit Ownership
1	Norges Bank Investment Management	39,332,019,760	38,319,945,580	460	1.8%
2	LGIM Singapore Pte Ltd.	3,413,948,770	3,413,948,770	122	0.2%
3	Olayan Europe Ltd.	2,675,143,229	2,675,143,229	18	0.1%
4	Two Sigma Advisers LP	2,877,080,801	1,913,820,648	246	0.1%
5	Dodge & Cox	5,988,652,500	1,514,121,652	59	0.3%
6	Zurcher Kantonalbank (Investment Management)	5,939,074,930	1,355,724,236	525	0.3%
7	Morgan Stanley & Co. LLC	5,644,694,124	1,349,377,363	406	0.3%
8	Millennium Management LLC	6,133,727,377	1,235,767,797	363	0.3%
9	Two Sigma Investments LP	2,006,451,785	1,142,880,453	281	0.1%
10	The Bank of Nova Scotia (Private Banking)	2,192,398,675	1,116,032,964	130	0.1%
11	BofA Securities, Inc.	1,858,961,513	955,985,253	395	0.1%
12	JPMorgan Chase Bank, NA (Investment Management)	3,221,122,151	933,156,706	346	0.1%
13	Aegon Asset Management UK PLC	1,119,721,743	833,567,370	39	0.1%
14	RBC Global Asset Management, Inc.	4,768,569,134	789,634,390	358	0.2%
15	Viking Global Investors LP	2,078,803,272	752,658,183	26	0.1%
16	Voloridge Investment Management LLC	1,335,834,561	698,255,086	134	0.1%
17	Groupama Asset Management SA	692,563,111	692,563,111	91	0.0%
18	First Sentier Investors (Hong Kong) Ltd.	841,315,928	664,976,455	19	0.0%
19	Point72 Asset Management LP	1,819,927,012	627,947,666	224	0.1%
20	Marshall Wace LLP	2,375,989,078	580,240,074	196	0.1%
21	Impax Asset Management LLC	1,019,361,383	537,617,730	81	0.0%
22	CIBC Private Wealth Advisors, Inc.	1,722,210,426	500,778,888	141	0.1%
23	Qube Research & Technologies Ltd.	2,283,539,914	494,071,542	277	0.1%
24	Mawer Investment Management Ltd.	455,114,665	453,884,134	32	0.0%
25	Mondrian Investment Partners Ltd.	738,619,945	452,595,927	25	0.0%

Source: Intro-act, 13F Filings

Chart 30: Top 25 Agtech Sellers (Q/Q)

Rank	Institution Name	Invested in Agtech (\$)	Q/Q Change (\$)	# Agtech Positions	% of Instit Ownership
1	The Vanguard Group, Inc.	244,031,661,529	(15,071,000,028)	703	11.1%
2	BlackRock Fund Advisors	135,487,818,960	(9,487,915,772)	667	6.2%
3	Wellington Management Co. LLP	50,684,168,048	(6,436,595,107)	304	2.3%
4	Union Investment Privatfonds GmbH	2,645,587,685	(6,145,257,454)	23	0.1%
5	SSgA Funds Management, Inc.	108,087,959,804	(5,719,542,865)	712	4.9%
6	Capital Research & Management Co. (World Investors)	33,800,826,783	(3,042,757,430)	138	1.5%
7	Geode Capital Management LLC	53,635,772,781	(2,624,790,295)	675	2.4%
8	Mellon Investments Corp.	9,179,045,361	(2,621,310,275)	581	0.4%
9	AllianceBernstein LP	15,446,234,394	(2,161,306,231)	473	0.7%
10	BlackRock Institutional Trust Co. NA	1,938,486,546	(2,066,796,484)	430	0.1%
11	Arrowstreet Capital LP	2,558,655,203	(2,050,760,959)	105	0.1%
12	Capital Research & Management Co. (International Investors)	17,886,177,354	(1,923,847,075)	84	0.8%
13	BlackRock Investment Management (UK) Ltd.	26,555,278,848	(1,792,864,327)	523	1.2%
14	Massachusetts Financial Services Co.	14,730,623,272	(1,775,222,801)	145	0.7%
15	Northern Trust Investments, Inc. (Investment Management)	26,389,934,600	(1,678,644,738)	645	1.2%
16	BlackRock Advisors (UK) Ltd.	23,792,320,115	(1,572,057,685)	593	1.1%
17	Fidelity Management & Research Co. LLC	28,970,957,201	(1,563,934,649)	474	1.3%
18	GQG Partners LLC	27,085,539	(1,510,947,122)	18	0.0%
19	JPMorgan Investment Management, Inc.	13,980,956,323	(1,505,019,637)	451	0.6%
20	Legal & General Investment Management Ltd.	14,700,138,076	(1,426,357,346)	558	0.7%
21	Columbia Management Investment Advisers LLC	11,861,019,444	(1,380,291,632)	386	0.5%
22	Nordea Investment Management AB (Denmark)	8,348,929,305	(1,379,758,884)	277	0.4%
23	Dimensional Fund Advisors LP	17,293,029,048	(1,378,479,151)	632	0.8%
24	First Trust Advisors LP	2,925,498,638	(1,347,316,571)	350	0.1%
25	Janus Henderson Investors US LLC	8,686,498,883	(1,335,033,452)	309	0.4%

Source: Intro-act, 13F Filings

ETF SPOTLIGHT

iShares Emergent Food and AgTech Multisector ETF (IVEG)

Closing Price (\$)	CUSIP	Expense Ratio	Inception
20.28	46436E395	0.47	25/04/2022

AUM (\$ million)	Shares Outstanding (#)	Fund Flows (1M, \$)	Fund Flows (YTD, \$)
50.7	2,50,000	-	-

Fund Description

The iShares Emergent Food and AgTech Multisector ETF (IVEG) is designed to provide investors with exposure to companies at the forefront of agricultural technology and innovative food products and services. The ETF's constituent selection process focuses on five-year net profit and projected revenue related to these themes, and weighting is determined by free-float market capitalization. By investing in IVEG, investors gain access to a diverse range of global companies positioned to benefit from groundbreaking advancements in agricultural technology, sustainable food product and packaging solutions, nutritional innovations, and the growing trend of alternative proteins. IVEG's forward-looking approach seeks to capitalize on long-term growth opportunities, allowing investors to participate in shaping the future of the global economy through food innovation and agricultural technology across various sectors, geographies, and company sizes.

ETF Returns Annualized (As of 3/31/2024)

1 Year	3 Year	5 Year	Since Inception
-0.53%	-	-	-6.65%

ETF Returns Cumulative (As of 3/31/2024)

1 Month	3 Month	YTD	Since Inception
5.68%	4.38%	4.38%	-12.47%

Top 10 Holdings (updated as of 4/12/2024)

Holdings	% Allocation	Market Value
TRIMBLE INC	4.98%	\$241,494.06
CORTEVA INC	4.64%	\$224,985.60
WESTROCK	4.46%	\$216,434.90
ECOLAB INC	4.45%	\$215,704.37
KUBOTA CORP	4.38%	\$212,691.73
CNH INDUSTRIAL N.V. NV	4.38%	\$212,398.71
BASF N	4.37%	\$211,939.22
PACKAGING CORP OF AMERICA	4.24%	\$205,886.00
WATERS CORP	4.24%	\$205,534.42
INTERNATIONAL FLAVORS & FRAGRANCES	4.21%	\$204,342.84

Source: Intro-act, FactSet

For more information on IVEG visit <https://www.ishares.com/us/products/326601/ishares-emergent-food-and-agtech-multisector-etf/>

Global X AgTech & Food Innovation ETF (KROP)

Closing Price (\$)	CUSIP	Expense Ratio	Inception
11.15	37954Y178	0.5	12/07/2021

AUM (\$ million)	Shares Outstanding (#)	Fund Flows (1M, \$)	Fund Flows (YTD, \$)
47.6	3,89,9942	(420,429.26)	(534,479.84)

Fund Description

The Global X AgTech & Food Innovation ETF (KROP) is designed to capitalize on the rapid advancements in the agriculture and food sectors by investing in companies driving innovation and technology adoption. KROP targets companies engaged in various facets of AgTech, such as precision agriculture, agricultural automation, biotechnology, and controlled environment agriculture like vertical farming and hydroponics. Additionally, it includes firms contributing to food innovation, particularly in protein and dairy alternatives, as well as reducing food waste. KROP offers exposure to a high-growth potential market, with the global AgTech sector projected to expand from nearly \$16 billion in 2022 to potentially surpass \$35 billion by 2030. This thematic ETF benefits from global trends addressing food security and environmental sustainability, making it well-positioned for growth. KROP's unconstrained investment approach ensures exposure to the forefront of evolving production and consumption dynamics in the AgTech and Food Innovation sectors, regardless of sector or geography.

ETF Returns Annualized (As of 3/31/2024)

1 Year	3 Year	5 Year	Since Inception
-22.74%	-	-	-25.40%

ETF Returns Cumulative (As of 3/31/2024)

YTD	1 Month	3 Months	Since Inception
3.38%	5.20%	3.38%	-54.94%

Top 10 Holdings (updated as of 4/12/2024)

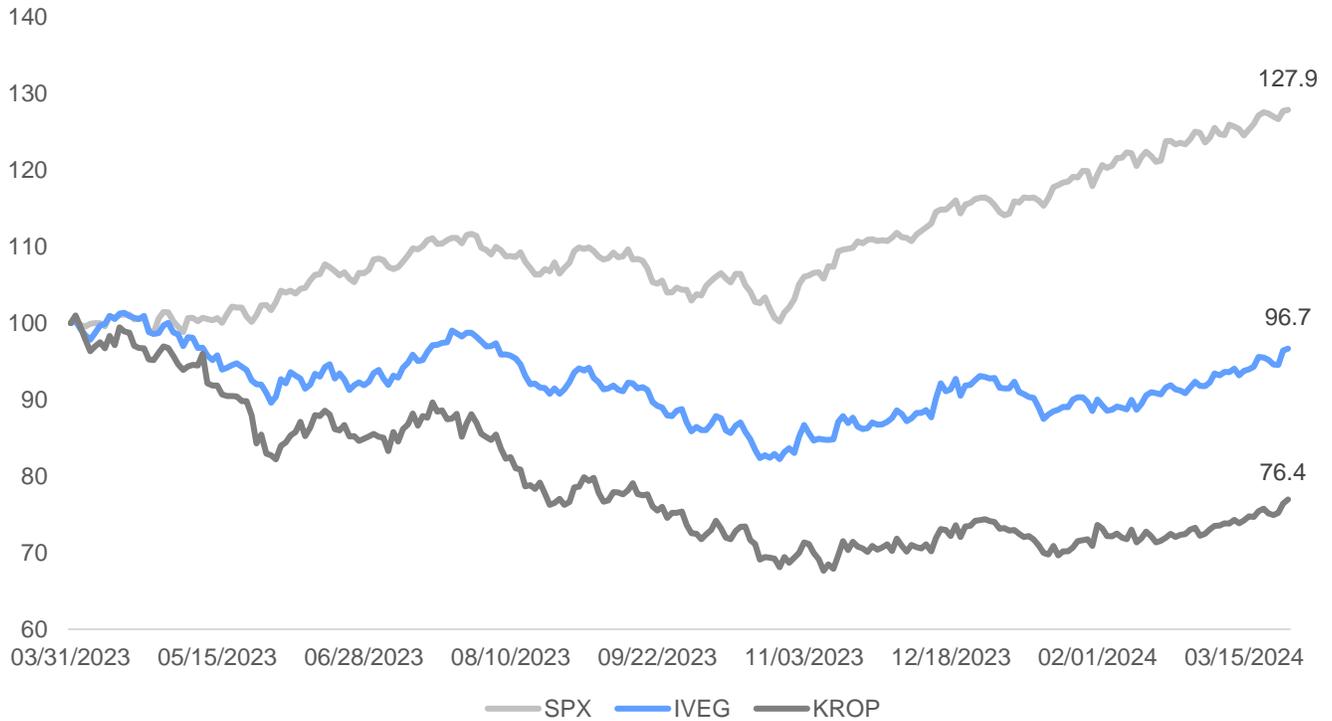
Holdings	% Allocation	Market Value
KUBOTA CORP	13.55%	\$567,371.80
CORTEVA INC	13.04%	\$546,040.32
DEERE & CO	11.93%	\$499,765.66
NUTRIEN LTD	10.54%	\$441,458.64
CNH INDUSTRIAL NV	5.35%	\$223,929.90
FMC CORP	4.51%	\$188,750.50
HEBEI YANGYUAN-A	4.48%	\$187,546.34
AGCO CORP	4.40%	\$184,215.35
CHENG DE LOLO CO LTD-A	3.87%	\$162,199.85
UNILEVER PLC	3.76%	\$157,293.23

Source: Intro-act, FactSet

For more information on KROP visit: <https://www.globalxetfs.com/funds/krop/#performance>

12-MONTH ETF PERFORMANCE

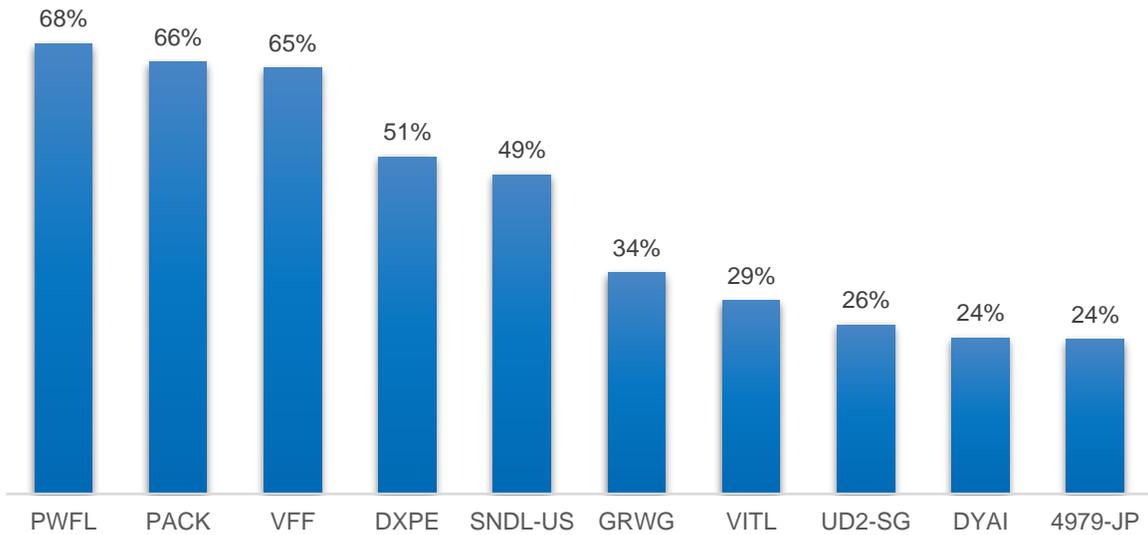
Chart 31: 12-Month Indexed Returns of IVEG and KROP vs. S&P 500



Source: Intro-act, FactSet, Data as of 3/31/24.

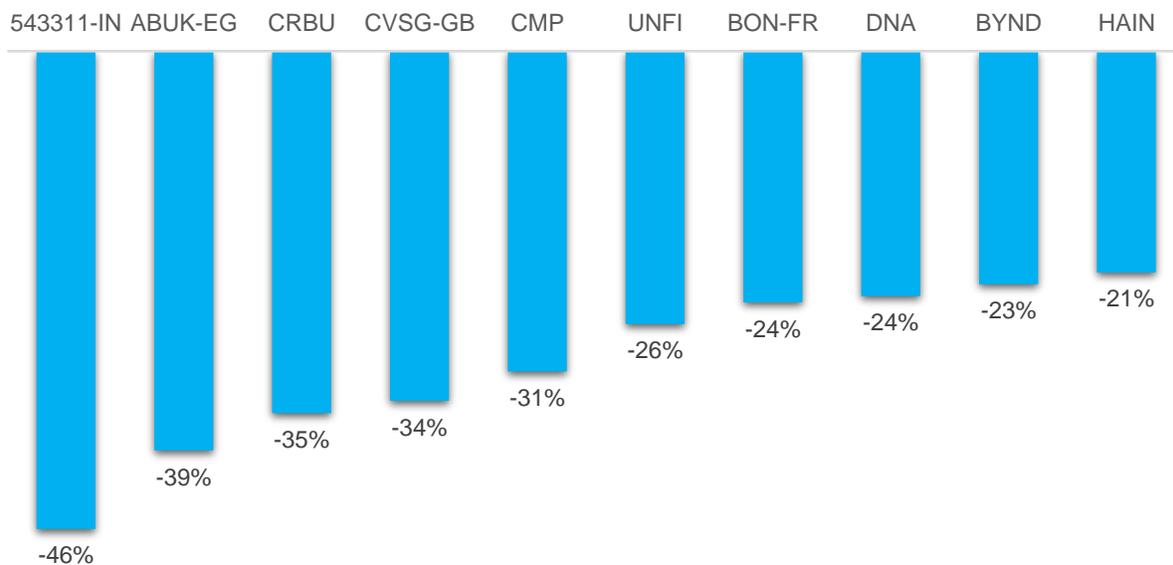
GAINERS AND LOSERS – AGTECH STOCKS

Chart 32: Top 10 M/M Agtech Gainers (March 2024)



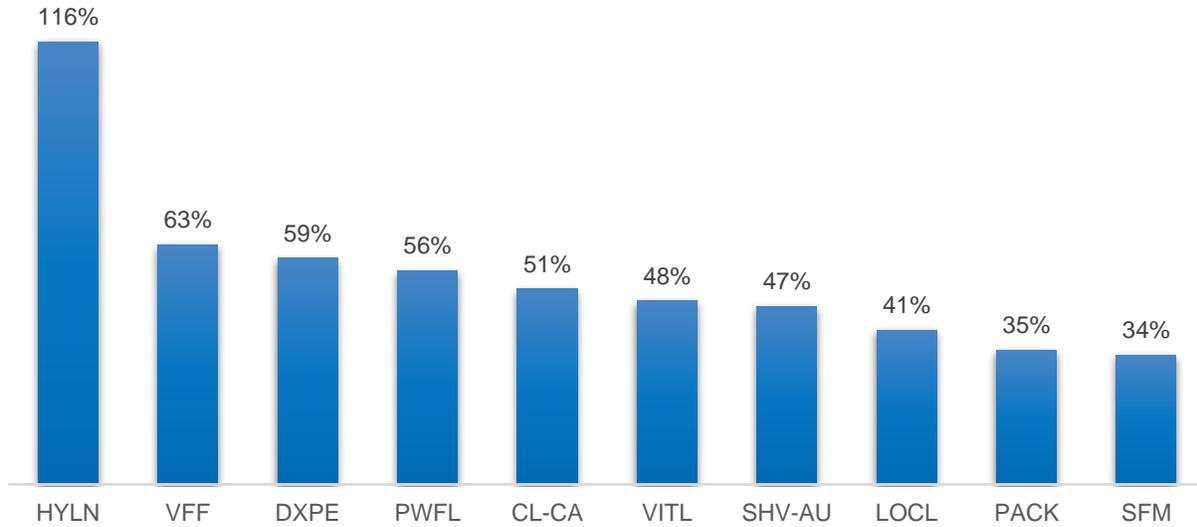
Source: Intro-act, FactSet

Chart 33: Top 10 M/M Agtech Losers (March 2024)



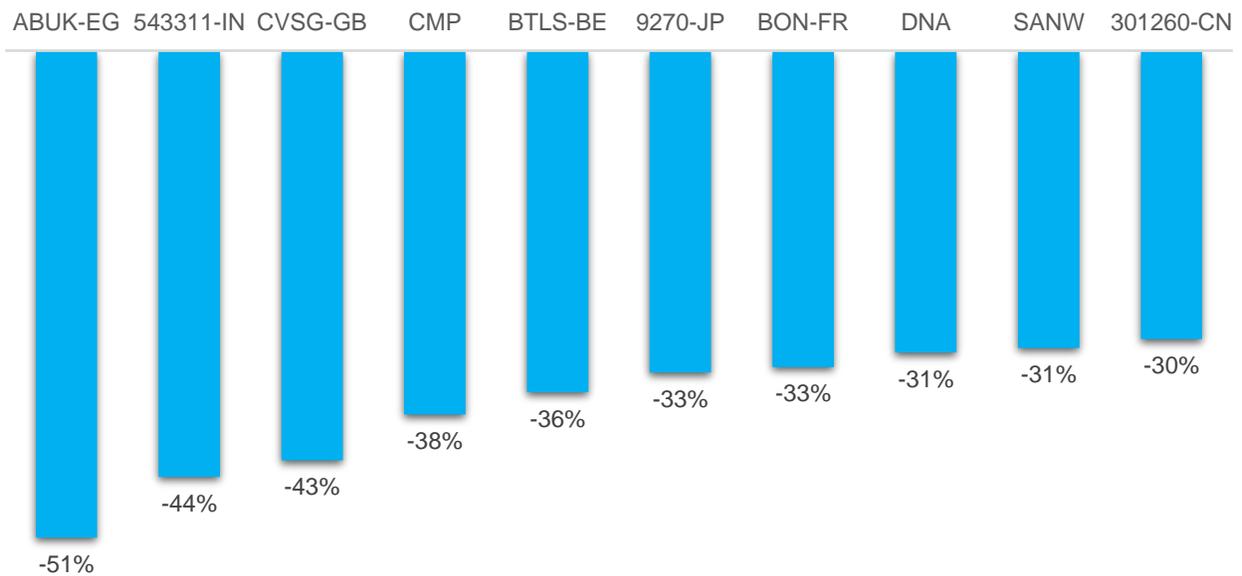
Source: Intro-act, FactSet

Chart 34: Top 10 YTD Agtech Gainers



Source: Intro-act, FactSet. YTD Data Through end of March 2024.

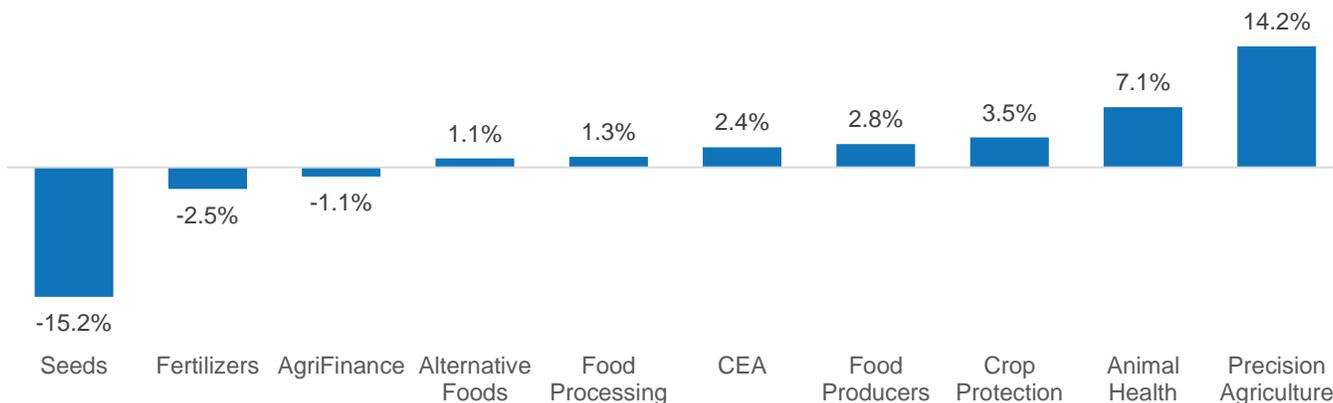
Chart 35: Top 10 YTD AgTech Losers



Source: Intro-act, FactSet. YTD Data Through end of March 2024.

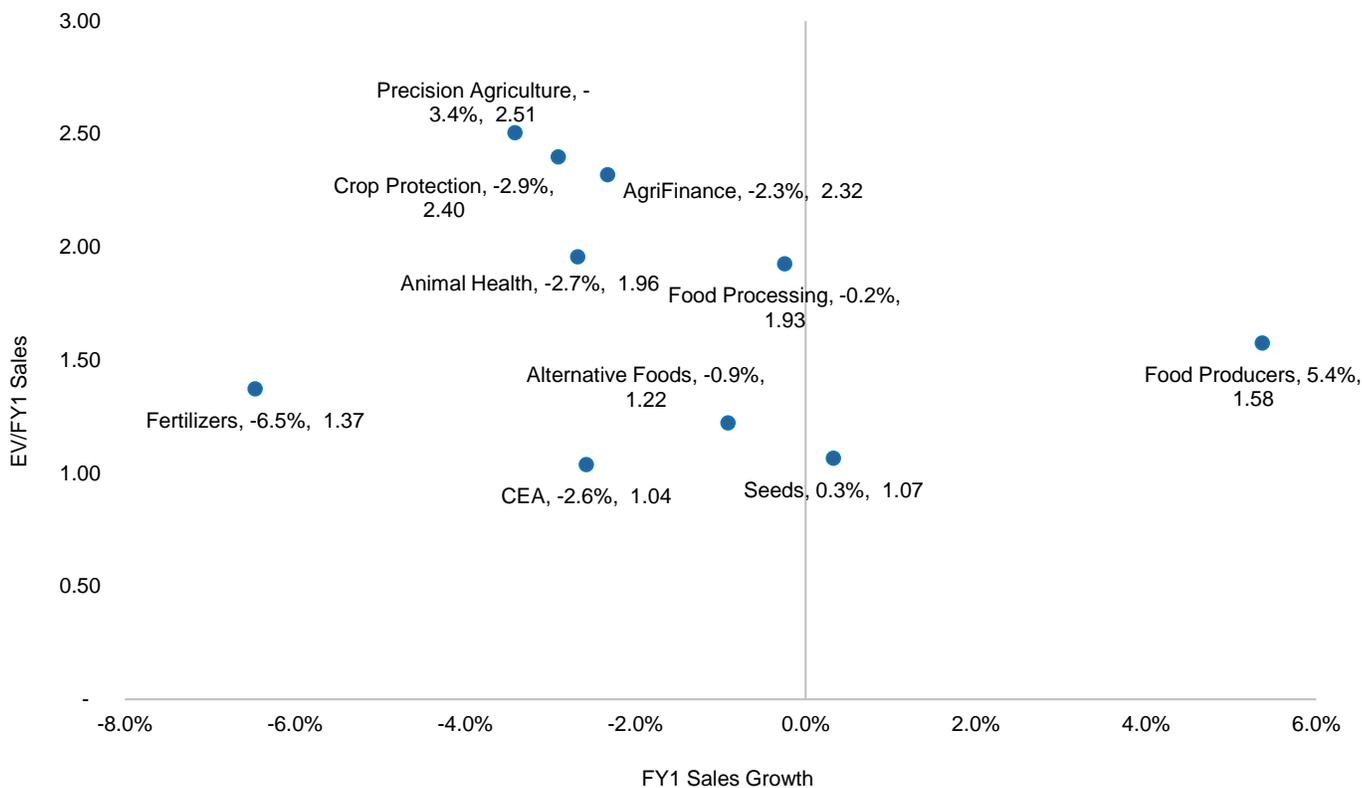
SEGMENT RETURN AND VALUATION

Chart 36: YTD Stock Price Returns by Segment



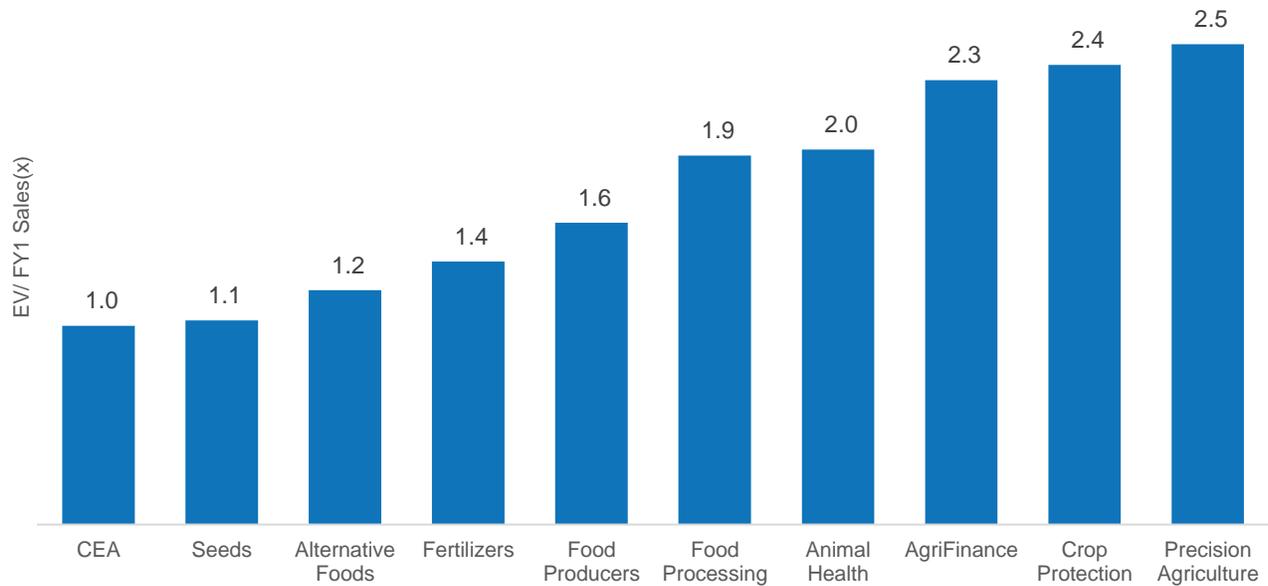
Source: Intro-act, FactSet. YTD Data Through end of March 2024.

Chart 37: Agtech Industry Growth and Valuation by Segment



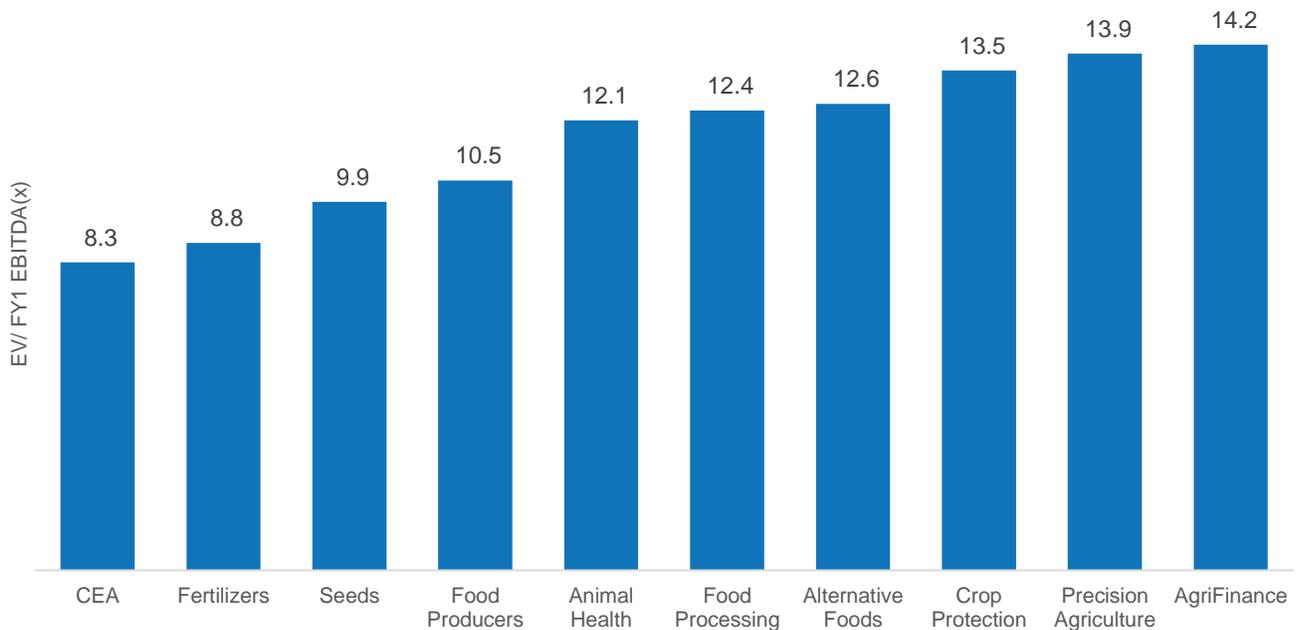
Source: Intro-act, FactSet. Data Through end of March 2024. FY0 = last reported year. FY1 = first unreported year.

Chart 38: EV/ FY1 Sales Multiple by Segment



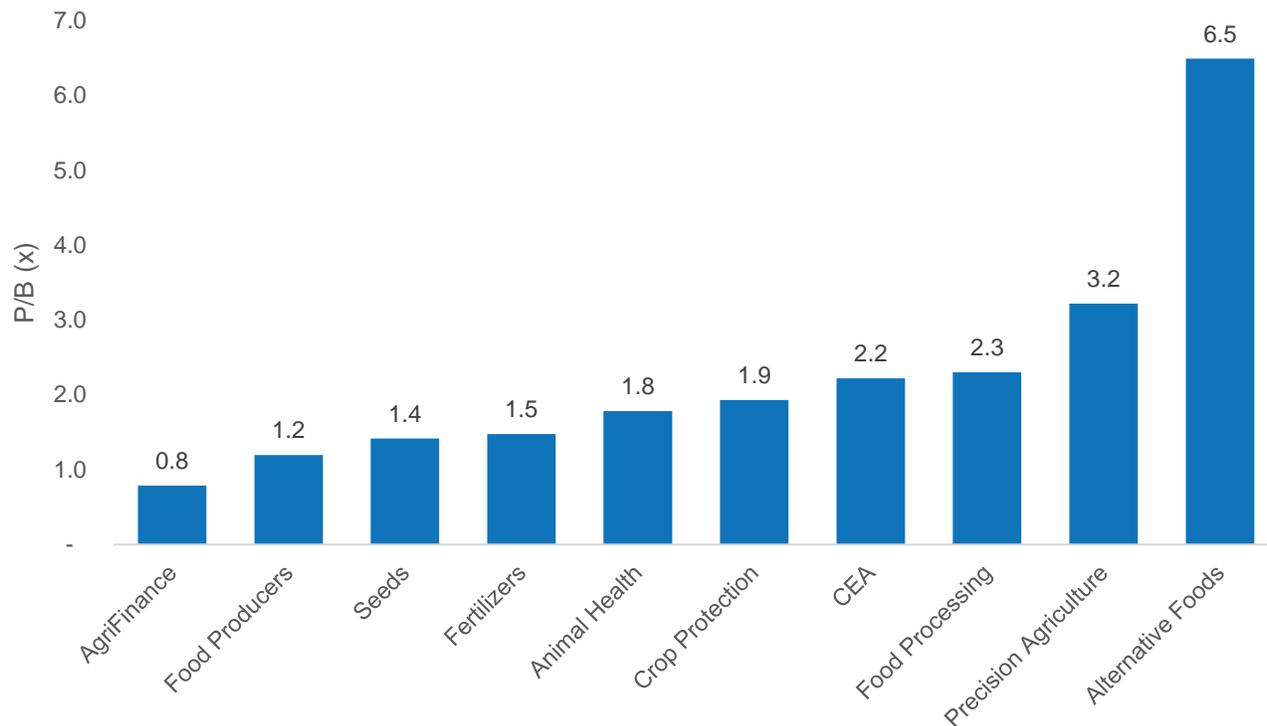
Source: Intro-act, FactSet. Data Through end of March 2024. FY0 = last reported year. FY1 = first unreported year.

Chart 39: EV/ FY1 EBITDA Multiple by Segment



Source: Intro-act, FactSet. Data Through end of March 2024. FY0 = last reported year. FY1 = first unreported year.

Chart 40: Price-to-Book Multiple by Segment



Source: Intro-act, FactSet. Data Through end of March 2024. FY0 = last reported year. FY1 = first unreported year.

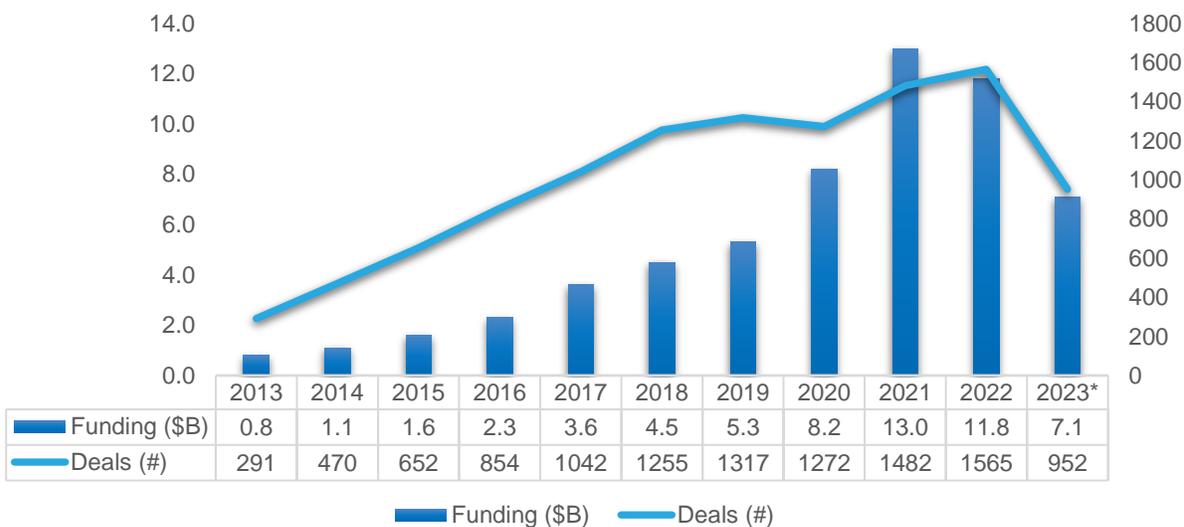
AGTECH CAPITAL MARKET TRENDS

Chart 41: Agtech VC Deal Activity by Quarter



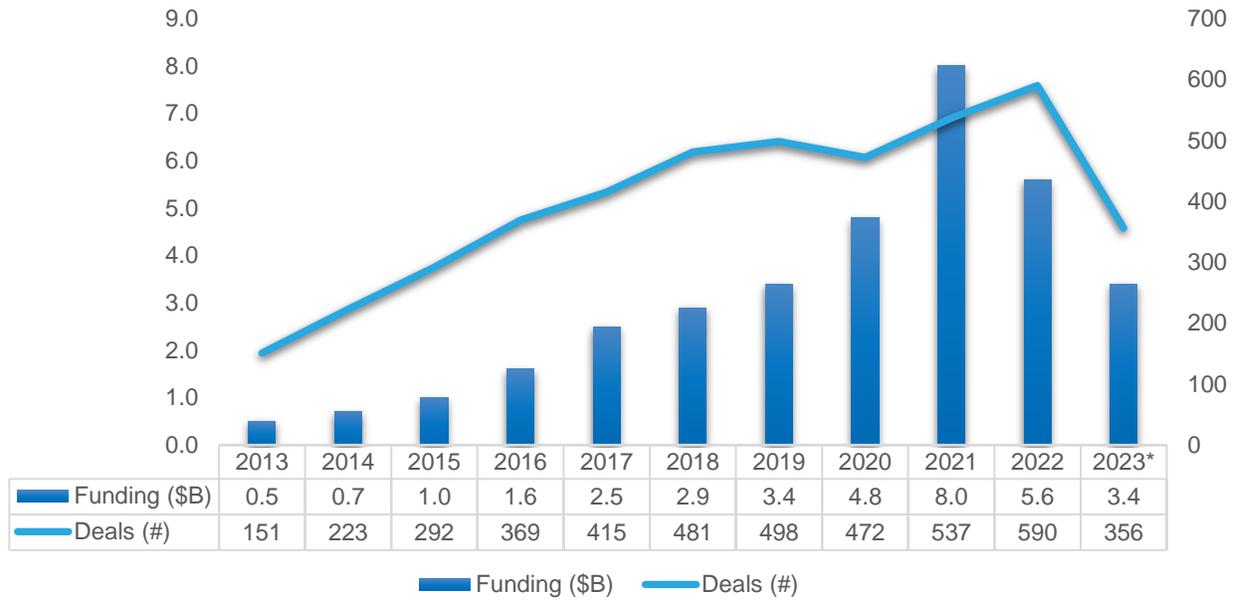
Source: Intro-act, Pitchbook, *Data as of December 31, 2023

Chart 42: Global Agtech VC Deal Activity – Last 10 years



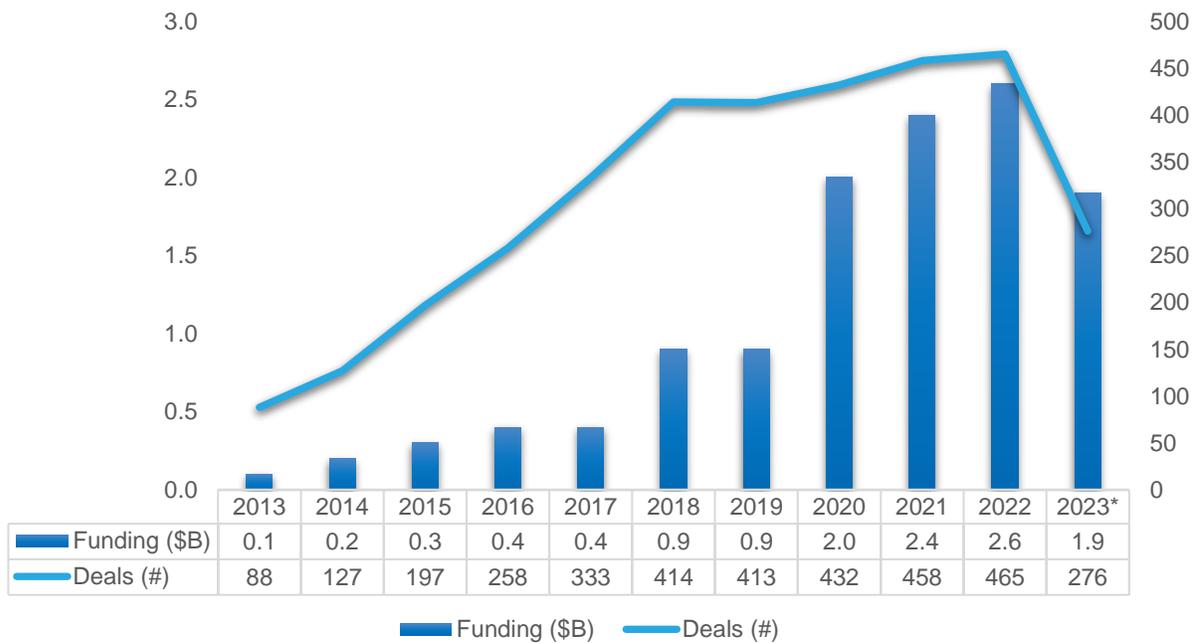
Source: Intro-act, Pitchbook, *Data as of December 31, 2023

Chart 43: North American Agtech VC Deal Activity – Last 10 years



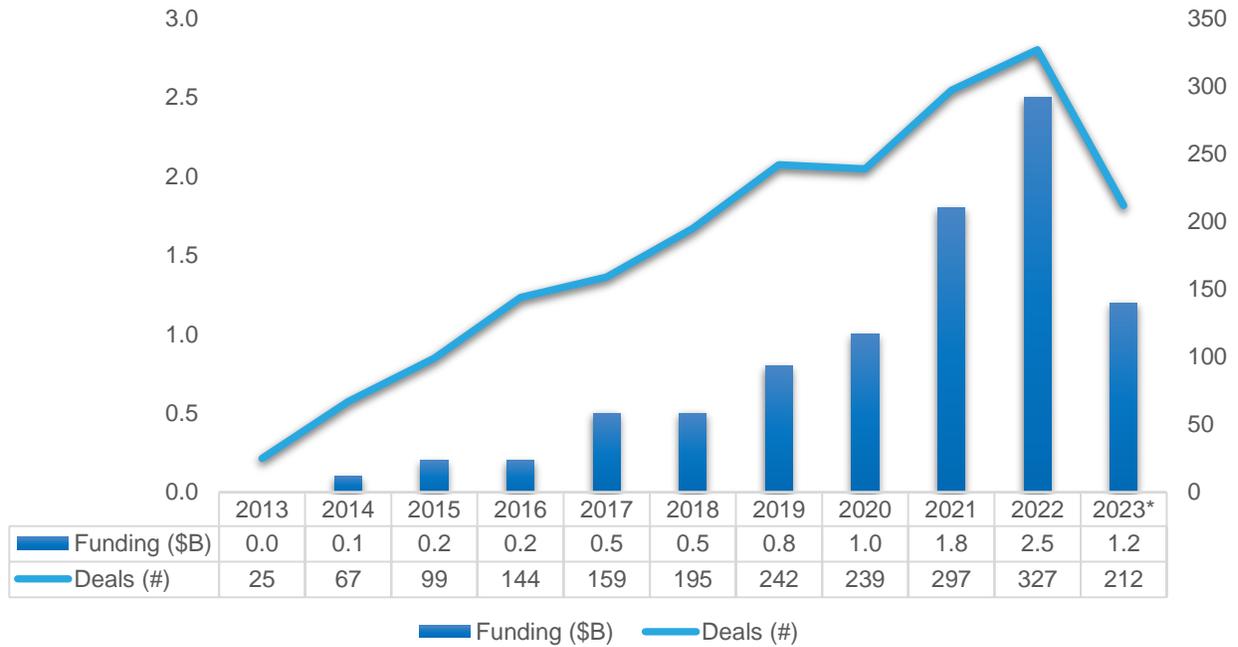
Source: Intro-act, Pitchbook, *Data as of December 31, 2023

Chart 44: European Agtech VC Deal Activity – Last 10 years



Source: Intro-act, Pitchbook, *Data as of December 31, 2023

Chart 45: Asian Agtech VC Deal Activity – Last 10 years



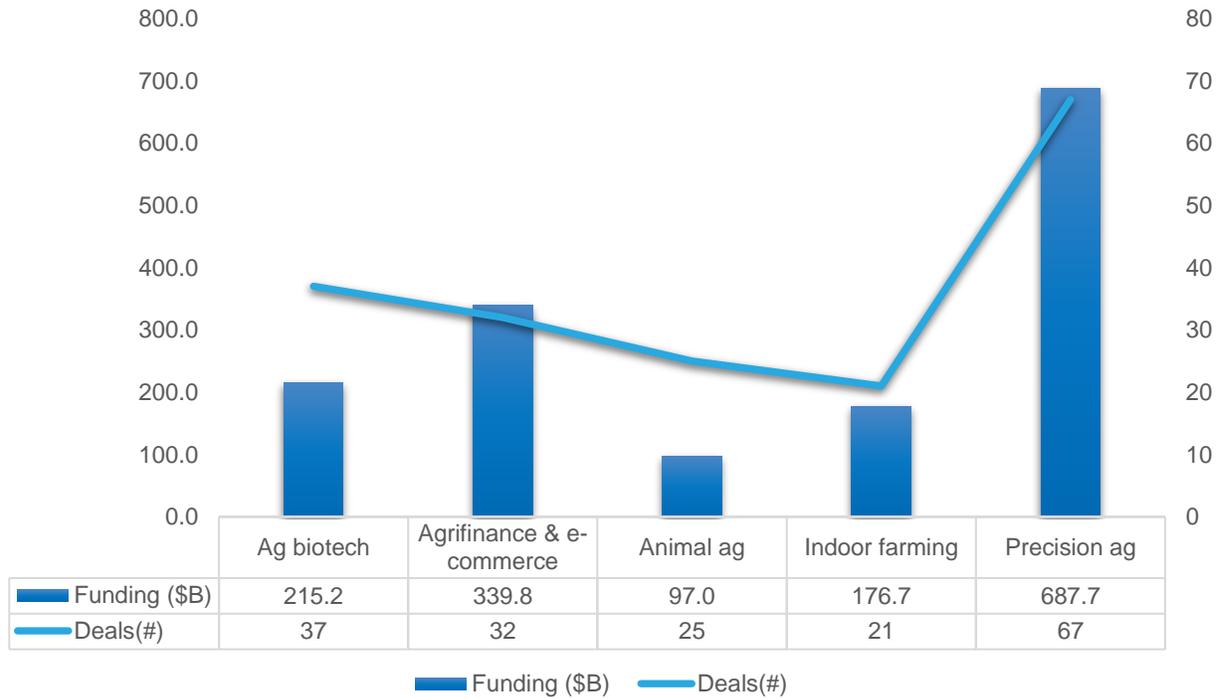
Source: Intro-act, Pitchbook, *Data as of December 31, 2023

Chart 46: Oceania Agtech VC Deal Activity – Last 10 years



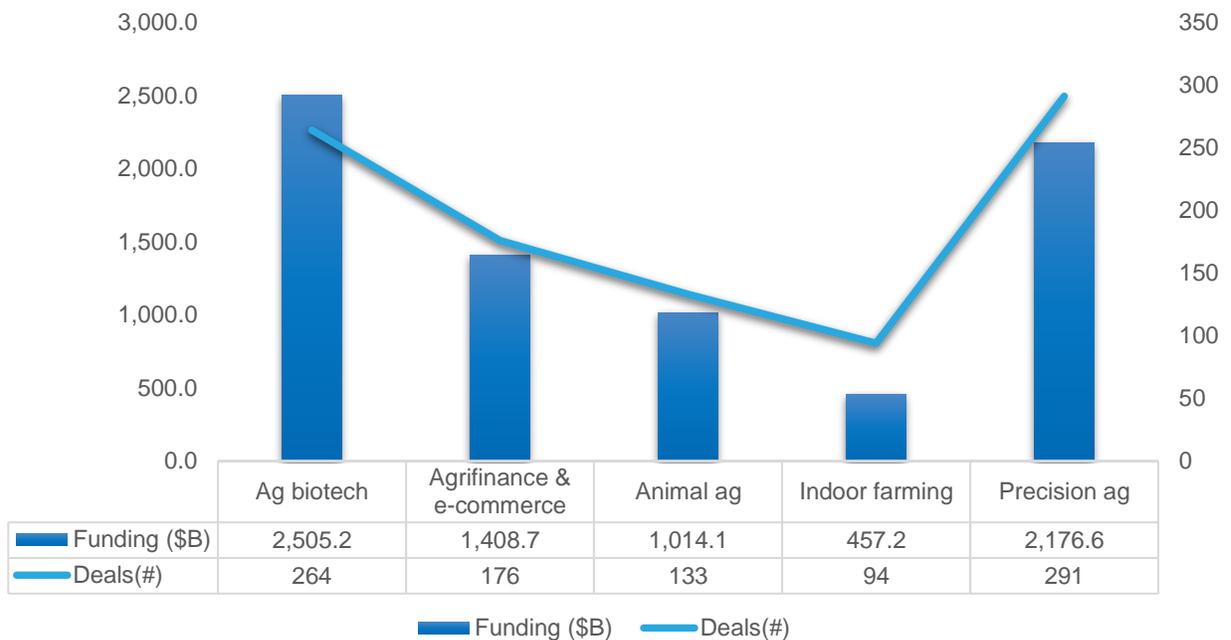
Source: Intro-act, Pitchbook, *Data as of December 31, 2023

Chart 47: Agtech VC Deal Activity by Segment – Q4 2023



Source: Intro-act, Pitchbook, *Data as of December 31, 2023

Chart 48: Agtech VC Deal Activity by Segment – TTM (as of Q4 2023)



Source: Intro-act, Pitchbook, *Data as of December 31, 2023

Chart 49: Agtech VC Exit Activity by Year



Source: Intro-act, Pitchbook, *Data as of December 31, 2023

Chart 50: Top 10 AgTech VC Deals in Q4 2023*

Company	Close date (2023)	Subsegment	Deal Value(\$M)
Farmers Business Network	13 October	Agribusiness marketplaces, farm management software, finance & insurance	154.90
Bowery	9 November	Indoor growers	93.80
Quantum Systems	24 October	Drones & imagery analytics	67.20
FarMart	17 October	Agribusiness marketplaces	65.00
Pachama	5 December	Drones & imagery analytics	64.00
Oritain	28 November	Plant data & analysis	57.00
NewLeaf Symbiotics	19 December	Plant biotech	47.00
VeGrow	13 December	Farm management software	46.00
Carbon Robotics	1 December	Robotics & smart field equipment	43.00
Planet Farms	16 November	Indoor farming components	40.00

Source: Intro-act, Pitchbook, *Data as of December 31, 2023

Chart 51: Top-10 VC-Backed Agtech Companies by Total VC Raised to Date*

Company	Category	VC(\$M) raised to date
Plant-Ag	Indoor growers	900.00
Farmers Business Network	Agribusiness marketplaces, farm management software, finance & insurance	369.30
Ninjacart	Agribusiness marketplaces	362.80
Zhongxin Breeding	Animal biotech	338.70
Atlas Agro	Plant biotech	333.00
Capella Space	Drones & imagery analytics	254.00
Plenty	Indoor growers	226.00
Re:Ocean	Aquaculture	222.30
Indigo	Plant biotech, agribusiness marketplaces	163.60
Synthego	Plant biotech	159.50

Source: Intro-act, Pitchbook, *Data as of December 31, 2023

Chart 52: Key Agtech VC Exits in Q4 2023*

Company	Close date (2023)	Subsegment
Shiyue Daotian	10 October	Plant biotech
Clearpath Robotics	2 October	Robotics & smart field equipment
ITK	31 October	Farm management software
Clinical Microbiomics	11 October	Animal biotech
QualySense	1 December	Robotics & smart field equipment
Peptyde Bio	4 December	Plant biotech
Barrix	16 December	Plant biotech
Orion Space Solutions	29 November	Drones & imagery analytics
Merci Raymond	18 October	Indoor farming systems
Dekon Farming	6 December	Livestock & land animal technology
Ame Kaze Taiyo	18 December	Agribusiness marketplaces

Source: Intro-act, Pitchbook, *Data as of December 31, 2023

AGTECH SPAC ACTION

Chart 53: Agtech SPACs (Searching)

S. No	SPAC Name	Ticker	Trust Value (\$ Mn)	IPO Date	Completion Date
1	Agriculture & Natural Solutions Acquisition	ANSC	345	11/8/2023	11/8/2025
2	Infinite Acquisition Corp.	NFNT	276	11/19/2021	11/23/2024
3	Keen Vision Acquisition Corp.	KVAC	150	7/24/2023	10/24/2024
4	Global System Dynamics, Inc.	GSDWU	105	8/4/2021	2/9/2024

Source: Intro-act, Boardroom Alpha

Chart 54: Agtech SPACs (Business Combination Agreement Announced)

S.No.	SPAC Name	Ticker	Target Company	EV (\$ Mn)	Expected Closing
1	Bite Acquisition Corp.	BITE	Above Food Corp.	319	3Q23
2	Kairous Acquisition Corp. Ltd	KACLU	Bamboo Mart Limited	-	4Q24
3	Noble Rock Acquisition Corporation	NRAC	Braiin	215	1Q24

Source: Intro-act, Boardroom Alpha

Chart 55: Agtech SPACs (Closed Deals Since January 2022)

S. No	SPAC Name	Ticker (Old)	DE-SPAC	Ticker	Closing Date
1	Globis Acquisition Corp.	GLAQ	Forafric	AFRI	10-Jun-22
2	Agrico Acquisition Corp.	RICO	Kalera	KAL	28-Jun-22
3	Riverview Acquisition Corp.	RVAC	Westrock Coffee Company	WEST	26-Aug-22
4	Lightjump Acquisition Corporation	LJAQ	Moolec Science	MLEC	3-Jan-23
5	TPB Acquisition Corporation I	TPBA	Lavoro	TPBA	27-Feb-23
6	Perception Capital Corp. II	PCCT	Spectaire Inc.	SPEC	19-Oct-23
7	10X Capital Venture Acquisition Corp. II	VCXA	African Agriculture, Inc.	AAGR	6-Dec-23
8	Lakeshore Acquisition II Corp.	LBBB	Nature's Miracle	NMHI	11-Mar-24
9	Edoc Acquisition Corp	ADOC	Australian Oilseeds Investments	COOT	21-Mar-24

Source: Intro-act, Boardroom Alpha

AGTECH EVENTS CALENDAR

S. No.	Event	Location	Dates
1	Argus Fertilizer Asia Conference	Dubai, UAE	23-Apr to 25-Apr-2024
2	Agrishow 2024	Ribeirao Preto, Brazil	29-Apr to 03-May-2024
3	ICAE 2024: International Conference on Agricultural Economics	Singapore	03-May to 04-May-2024
4	Cannabis Europa 2024	London, UK	07-May to 08-May-2024
5	Animal Nutrition Conference of Canada (ANCC)	Winnipeg, Canada	14-May to 16-May-2024
6	SIAL Canada	Montreal, Canada	15-May to 17-May-2024
7	17th International Conference on Plant Genomics	Rome, Italy	16-May to 17-May-2024
8	34th International Congress on Sustainable Agriculture, Biological & Environmental Sciences (ASABES 2024)	Antalya, Turkey	16-May to 17-May-2024
9	5th Annual World Intelligent Farming Summit	Berlin, Germany	23-May to 24-May-2024
10	The 11th International Agricultural Science and Food Engineering Conference (ASFE 2024)	Kunming, China	28-May to 30-May-2024
11	Biopesticides Europe 2024	Barcelona, Spain	05-Jun to 06-Jun-2024
12	ICFAH 2024: International Conference on Forestry and Animal Husbandry	Barcelona, Spain	10-Jun to 11-Jun-2024
13	Animal Health, Nutrition and Technology Innovation USA 2024	Massachusetts, US	11-Jun to 13-Jun-2024
14	Plant Molecular Farming for Alternative Proteins and Agbio Summit	North Carolina, US	11-Jun to 13-Jun-2024
15	GreenTech Amsterdam 2024	Amsterdam, Netherlands	11-Jun to 13-Jun-2024
16	International Conference on Agronomy and Horticulture (ICAH 2024)	Toronto, Canada	13-Jun to 14-Jun-2024
17	International Conference on Urban Agriculture (ICUA 2024)	Toronto, Canada	19-Jun to 20-Jun-2024
18	14th Annual European Food Sure Summit 2024	Madrid, Spain	20-Jun to 21-Jun-2024
19	4th Global Conference on Agriculture	Vienna, Austria	21-Jun to 22-Jun-2024
20	6th World Congress on Food Science & Technology	Valencia, Spain	24-Jun to 25-Jun-2024
21	4th Edition of World Aquaculture and Fisheries Conference (WAC 2024)	Paris, France	24-Jun to 26-Jun-2024
22	19th International Conference on Food Microbiology	London, UK	27-Jun to 28-Jun-2024
23	3rd Global Conference on Agriculture, Fisheries, Forestries, and Food (GCAFFF)	Calgary, Canada	28-Jun to 30-Jun-2024

Source: Intro-act, Multiple Web Sources

AGTECH COMP TABLE

			Price	Mkt Cap (\$ Mns)	Ent Val (\$ Mns)	Price Performance			Sales			EBITDA			Book Value	
						% to High	% to Low	% YTD	FY0	FY1	EV/Sales	FY0	FY1	EV/EBITDA	Book/Share	P/Book
Peer Set																
Alternative Foods			Ticker	238,387	302,197			1%	249,457	247,183	1.2 x	23,077	24,000	12.6 x		6.5 x
1	Givaudan SA	GIVN-CH	4,458.8	41,170	46,253	4%	-32%	8%	7,967	7,883	5.9 x	1,737	1,810	25.6 x	480.45	9.3 x
2	General Mills	GIS	70.0	39,501	51,808	30%	-14%	7%	20,094	20,024	2.6 x	4,053	4,166	12.4 x	16.72	4.2 x
3	Archer-Daniels-Midland	ADM	62.8	32,024	36,761	39%	-19%	-13%	93,935	91,174	0.4 x	6,181	4,972	7.4 x	47.04	1.3 x
4	International Flavors & Fragrances	IFF	86.0	21,955	32,097	13%	-28%	6%	11,479	11,031	2.9 x	2,000	2,035	15.8 x	57.23	1.5 x
5	Kellogg	K	57.3	19,579	25,958	26%	-17%	2%	13,122	12,777	2.0 x	2,039	2,237	11.6 x	9.32	6.1 x
6	Kerry Group Plc	KRZ-IE	85.8	14,915	16,845	29%	-12%	-1%	8,631	8,498	2.0 x	1,261	1,314	12.8 x	40.07	2.1 x
7	Tyson Foods	TSN	58.7	16,817	28,834	8%	-23%	9%	52,881	53,028	0.5 x	2,147	2,803	10.3 x	51.95	1.1 x
8	Symrise AG	SY1-DE	119.8	16,748	19,185	2%	-23%	9%	5,159	5,252	3.7 x	971	1,066	18.0 x	28.06	4.3 x
9	China Mengniu Dairy	2319-HK	2.1	8,447	11,620	101%	-9%	-20%	13,644	14,202	0.8 x	1,261	1,372	8.5 x	1.47	1.5 x
10	GEA Group	G1A-DE	42.3	7,294	6,416	15%	-21%	8%	5,861	5,869	1.1 x	845	849	7.6 x	16.06	2.6 x
11	Monde Nissin Corp.	MONDE-PH	0.2	3,490	3,309	6%	-45%	28%	1,420	1,465	2.3 x	171	262	12.7 x	0.06	3.4 x
12	Sensient Technologies	SXT	69.2	2,930	3,577	14%	-24%	5%	1,456	1,504	2.4 x	241	253	14.1 x	25.04	2.8 x
13	Maple Leaf Foods	MFI-CA	16.4	2,014	3,473	44%	-3%	-14%	3,606	3,623	1.0 x	317	413	8.4 x	9.14	1.8 x
14	Yuan Longping Hi-Tech	000998-CN	1.8	2,309	2,702	37%	-9%	-11%	532	1,242	2.2 x	(10)	122	22.2 x	0.50	3.6 x

15	Ginkgo Bioworks	DNA	1.2	1,915	1,475	119%	-22%	-31%	251	223	6.6 x	(444)	(386)	-	0.58	2.0 x
16	Adama Agricultural	000553-CN	0.8	1,777	4,074	63%	-13%	-17%	4,535	4,285	1.0 x	300	414	9.8 x	1.30	0.6 x
17	Cheng De Lolo	000848-CN	1.2	1,215	813	25%	-14%	7%	391	395	2.1 x	113	114	7.2 x	0.39	3.0 x
18	Hain Celestial Group	HAIN	7.9	706	1,558	133%	-26%	-28%	1,797	1,809	0.9 x	167	157	9.9 x	11.09	0.7 x
19	Winall Hi-Tech	300087-CN	1.1	1,050	1,134	48%	-20%	-6%	568	704	1.6 x	77	83	13.7 x	0.28	3.9 x
20	SunOpta	STKL	6.9	797	1,208	25%	-59%	26%	630	686	1.8 x	84	90	13.5 x	1.39	4.9 x
21	Oatly Group	OTLY	1.1	672	957	118%	-61%	-4%	783	832	1.2 x	(158)	(57)	-	0.56	2.0 x
22	Beyond Meat	BYND	8.3	536	1,559	132%	-33%	-7%	343	330	4.7 x	(274)	(106)	-	(7.94)	-1.0 x
23	Ouro Fino Saude	OFSA3-BR	5.0	269	295	14%	-28%	-7%	-	-	-	-	-	-	2.56	1.9 x
24	Biotallys	BTLS-BE	3.3	107	87	128%	-47%	-36%	3	3	27.4 x	(19)	(9)	-	1.18	2.8 x
25	Midsona AB	MSON.B-SE	0.7	103	153	24%	-17%	-13%	363	342	0.4 x	18	27	5.6 x	1.92	0.4 x
26	MustGrow Biologics	MGRO-CA	0.9	46	44	126%	-43%	-6%	5	0	-	-	-	-	0.04	25.6 x

			Price	Mkt Cap (\$ Mns)	Ent Val (\$ Mns)	Price Performance			Sales			EBITDA			Book Value	
						% to High	% to Low	% YTD	FY0	FY1	EV/Sales	FY0	FY1	EV/EBITDA	Book/Share	P/Book
Peer Set																
	Precision Agriculture	Ticker		579,418	738,417			14%	305,097	294,671	2.5 x	53,862	52,957	13.9 x		3.2 x
27	Caterpillar	CAT	366.4	182,987	214,470	4%	-44%	24%	67,060	67,237	3.2 x	15,261	15,344	14.0 x	39.04	9.4 x
28	Deere & Company	DE	410.7	114,333	169,722	10%	-16%	3%	55,565	47,563	3.6 x	14,257	11,183	15.2 x	79.30	5.2 x
29	Cummins	CMI	294.7	41,798	47,302	3%	-31%	23%	34,065	32,790	1.4 x	3,017	4,915	9.6 x	62.41	4.7 x
30	Ingersoll Rand	IR	95.0	38,306	39,647	1%	-44%	23%	6,876	7,306	5.4 x	1,787	1,952	20.3 x	24.26	3.9 x
31	Mahindra & Mahindra	500520-IN	23.0	28,647	36,261	10%	-37%	11%	10,266	11,821	3.1 x	1,256	1,550	23.4 x	6.51	3.5 x
32	Tractor Supply Company	TSCO	261.7	28,244	32,898	2%	-29%	22%	14,556	14,982	2.2 x	1,877	1,934	17.0 x	19.91	13.1 x
33	Kubota Corporation	6326-JP	15.8	18,535	33,166	7%	-20%	5%	20,131	19,708	1.7 x	2,744	2,747	12.1 x	12.24	1.3 x
34	CNH Industrial NV	CNHI	13.0	16,281	39,432	21%	-25%	6%	24,687	21,325	1.8 x	3,130	2,801	14.1 x	6.29	2.1 x
35	Trimble	TRMB	64.4	15,812	18,853	2%	-39%	21%	3,799	3,611	5.2 x	978	946	19.9 x	18.26	3.5 x
36	Pentair plc	PNR	85.4	14,126	16,047	0%	-40%	18%	4,105	4,225	3.8 x	909	1,011	15.9 x	19.46	4.4 x
37	Toro Company	TTC	91.6	9,567	10,501	18%	-14%	-5%	4,553	4,646	2.3 x	712	737	14.3 x	14.88	6.2 x
38	AGCO Corporation	AGCO	123.0	9,179	10,104	14%	-14%	1%	14,412	13,574	0.7 x	1,973	1,715	5.9 x	62.49	2.0 x
39	SiteOne Landscape	SITE	174.6	7,879	8,648	8%	-33%	7%	4,301	4,560	1.9 x	411	440	19.6 x	32.96	5.3 x
40	Trelleborg AB	TBABF	36.1	8,176	8,558	11%	-37%	14%	3,270	3,141	2.7 x	670	659	13.0 x	17.01	2.1 x
41	Valmont Industries	VMI	228.3	4,615	5,767	38%	-17%	-2%	4,175	4,083	1.4 x	580	583	9.9 x	67.01	3.4 x
42	Bucher Industries	BUCN-CH	440.5	4,516	4,064	7%	-21%	5%	4,039	3,565	1.1 x	580	476	8.5 x	194.78	2.3 x

Monthly Newsletter – The Agtech Industry

43	Escorts Kubota	500495-IN	33.3	3,681	3,284	24%	-30%	-5%	1,019	1,107	3.0 x	96	145	22.6 x	9.55	3.5 x
44	Husqvarna AB	HUSQ.B-SE	8.6	4,007	6,458	16%	-28%	5%	5,079	4,637	1.4 x	754	709	9.1 x	3.89	2.2 x
45	Kadant	KAI	328.1	3,845	3,873	8%	-44%	17%	958	1,062	3.6 x	201	228	17.0 x	66.08	5.0 x
46	TOMRA Systems	TOM-NO	15.7	4,652	5,023	8%	-54%	30%	1,399	1,368	3.7 x	232	271	18.6 x	2.07	7.6 x
47	Turk Traktor	TTRAK.E-TR	30.5	3,056	2,917	29%	-55%	27%	1,607	1,975	1.5 x	380	404	7.2 x	2.40	12.7 x
48	Alamo Group	ALG	228.3	2,743	2,913	1%	-31%	8%	1,690	1,777	1.6 x	247	263	11.1 x	78.50	2.9 x
49	Lindsay Corporation	LNN	117.7	1,298	1,260	17%	-10%	-9%	674	603	2.1 x	121	100	12.6 x	43.76	2.7 x
50	Helios Technologies	HLIO	44.7	1,480	1,995	51%	-16%	-1%	836	845	2.4 x	161	171	11.6 x	25.82	1.7 x
51	Titan International	TWI	12.5	904	976	23%	-26%	-16%	1,822	2,253	0.4 x	205	227	4.3 x	7.69	1.6 x
52	Gorman-Rupp Company	GRC	39.6	1,037	1,431	1%	-41%	11%	660	693	2.1 x	116	121	11.9 x	13.34	3.0 x
53	Greenworks	301260-CN	1.7	839	733	129%	-26%	-30%	773	-	-	28	-	-	1.36	1.3 x
54	Comer Industries	COM-IT	36.5	1,047	1,152	5%	-29%	13%	1,324	1,194	1.0 x	222	192	6.0 x	17.75	2.1 x
55	Astec Industries	ASTE	43.7	994	1,017	29%	-34%	17%	1,338	1,344	0.8 x	103	114	8.9 x	28.73	1.5 x
56	Ag Growth International	AFN-CA	45.3	862	1,481	6%	-25%	18%	1,130	1,181	1.3 x	217	223	6.6 x	12.36	3.7 x
57	Titan Machinery	TITN	24.8	567	1,350	45%	-14%	-14%	2,758	3,002	0.4 x	192	150	9.0 x	28.78	0.9 x
58	DXP Enterprises	DXPE	53.7	869	1,284	7%	-59%	59%	1,679	1,807	0.7 x	174	188	6.8 x	23.54	2.3 x
59	Yamabiko Corporation	6250-JP	13.2	582	576	5%	-32%	33%	1,005	1,043	0.6 x	-	-	-	14.01	0.9 x
60	EXEL Industries SA	EXE-FR	60.3	409	540	8%	-29%	1%	1,203	1,200	0.5 x	109	108	5.0 x	70.52	0.9 x
61	Tsukishima Holdings	6332-JP	9.5	433	566	7%	-16%	6%	718	-	-	-	-	-	12.96	0.7 x

62	Millat Tractors	MTL-PK	2.1	404	420	13%	-46%	2%	150	-	-	-	-	-	0.20	10.5 x
63	V.S.T. Tillers Tractors	531266-IN	39.0	337	296	29%	-26%	-14%	122	117	2.5 x	15	15	20.4 x	12.10	3.2 x
64	First Tractor	38-HK	0.8	305	782	27%	-44%	23%	1,596	1,771	0.4 x	156	179	4.4 x	0.84	0.9 x
65	Mayville Engineering	MEC	14.3	292	472	8%	-33%	-1%	588	634	0.7 x	66	76	6.2 x	11.32	1.3 x
66	Hyllion Holdings	HYLN	1.8	322	159	30%	-71%	116%	1	1	122.1 x	(128)	(42)	-	1.67	1.1 x
67	TYM Corporation	002900-KR	4.0	181	343	89%	-18%	-2%	-	-	-	-	-	-	6.64	0.6 x
68	Emak S.p.A.	EM-IT	1.2	200	418	11%	-24%	1%	616	662	0.6 x	74	83	5.0 x	1.85	0.7 x
69	Iseki & Co	6310-JP	6.8	157	664	36%	-4%	-10%	1,132	-	-	-	-	-	20.84	0.3 x
70	Carr's Group PLC	CARR-GB	1.4	136	140	35%	-20%	13%	181	-	-	12	-	-	1.45	1.0 x
71	PowerFleet	PWFL	5.3	576	266	6%	-69%	56%	134	258	1.0 x	7	41	6.5 x	2.16	2.5 x
72	Maruyama Mfg	6316-JP	16.4	83	84	17%	-24%	4%	275	-	-	-	-	-	28.84	0.6 x
73	Al-Ghazi Tractors	AGTL-PK	1.2	72	72	33%	-36%	-4%	-	-	-	-	-	-	0.36	3.5 x
74	Takakita Co	6325-JP	3.3	46	33	20%	-13%	15%	57	-	-	-	-	-	4.49	0.7 x

Peer Set	Price	Mkt Cap (\$ Mns)	Ent Val (\$ Mns)	Price Performance			Sales			EBITDA			Book Value			
				% to High	% to Low	% YTD	FY0	FY1	EV/Sales	FY0	FY1	EV/EBITDA	Book/Share	P/Book		
Animal Health	Ticker	748,359	902,199			7%	473,801	461,101	2.0 x	61,234	74,306	12.1 x		1.8 x		
75	Merck & Co	MRK	132.0	334,182	363,210	1%	-25%	21%	60,115	63,769	5.7 x	8,999	28,856	12.6 x	14.84	8.9 x
76	Zoetis	ZTS	169.2	77,476	82,316	19%	-12%	-14%	8,544	9,172	9.0 x	3,513	4,009	20.5 x	10.90	15.5 x
77	Marubeni Corporation	8002-JP	17.4	29,119	43,470	8%	-20%	10%	68,138	51,410	0.8 x	3,696	3,030	14.3 x	12.49	1.4 x
78	Muyuan Foods	002714-CN	6.0	32,630	42,406	19%	-29%	7%	18,017	15,819	2.7 x	4,147	986	43.0 x	1.72	3.5 x
79	Inner Mongolia Yili	600887-CN	3.9	24,339	26,724	14%	-11%	2%	17,750	17,637	1.5 x	2,067	2,198	12.2 x	1.13	3.4 x
80	Wen's Foodstuff	300498-CN	2.6	17,487	21,898	20%	-15%	-7%	12,096	12,327	1.8 x	1,766	(78)	-	0.73	3.6 x
81	Avivagen	VIV	10.1	16,642	19,599	14%	-22%	-8%	10,559	11,022	1.8 x	4,296	4,507	4.3 x	8.67	1.2 x
82	Hormel Foods	HRL-US	34.9	19,109	21,801	20%	-18%	9%	12,110	12,255	1.8 x	1,430	1,433	15.2 x	14.32	2.4 x
83	Alfa Laval AB	ALFA-SE	39.4	16,266	17,294	6%	-22%	-2%	6,023	6,273	2.8 x	1,115	1,201	14.4 x	8.38	4.7 x
84	Almarai Co. Ltd.	2280-SA	15.3	15,251	17,891	23%	-7%	2%	5,219	5,527	3.2 x	1,304	1,409	12.7 x	4.75	3.2 x
85	Tongwei Co. Ltd	600438-CN	3.4	15,491	19,657	73%	-9%	-2%	20,591	21,067	0.9 x	6,593	4,503	4.4 x	1.97	1.7 x
86	Conagra Brands	CAG-US	29.6	14,168	23,248	31%	-15%	3%	12,277	12,072	1.9 x	2,407	2,307	10.1 x	19.15	1.5 x
87	Henan Shuanghui	000895-CN	3.6	12,582	12,688	15%	-8%	-4%	8,308	8,859	1.4 x	1,110	1,165	10.9 x	0.83	4.4 x
88	Bunge Limited	BG	102.5	14,703	18,890	14%	-16%	2%	59,540	56,262	0.3 x	3,531	2,584	7.3 x	74.67	1.4 x
89	Mowi ASA	MOWI-NO	18.4	9,535	12,210	8%	-16%	3%	5,903	6,241	2.0 x	1,479	1,583	7.7 x	7.19	2.6 x
90	Evonik Industries	EVK-DE	19.8	9,223	12,882	11%	-16%	-3%	16,585	16,407	0.8 x	1,799	2,023	6.4 x	20.65	1.0 x

91	SalMar ASA	SALM-NO	66.3	8,755	10,522	2%	-42%	19%	2,676	2,746	3.8 x	900	957	11.0 x	13.92	4.8 x
92	Elanco Animal Health	ELAN	16.3	8,026	13,588	4%	-52%	9%	4,417	4,496	3.0 x	979	987	13.8 x	12.63	1.3 x
93	Darling Ingredients	DAR	46.5	7,431	12,019	54%	-16%	-7%	6,788	6,213	1.9 x	1,612	1,476	8.1 x	28.87	1.6 x
94	New Hope Liuhe	000876-CN	1.3	5,963	16,705	52%	-18%	2%	20,425	21,270	0.8 x	934	516	32.4 x	0.72	1.8 x
95	Balchem Corporation	BCPC	155.0	5,000	5,264	3%	-29%	4%	922	965	5.5 x	231	253	20.8 x	32.68	4.7 x
96	Neogen Corporation	NEOG	15.8	3,417	4,077	53%	-26%	-22%	822	912	4.5 x	205	212	19.2 x	14.52	1.1 x
97	Bakkafrost P/F	BAKKA-NO	64.6	3,826	4,408	12%	-36%	23%	1,037	1,243	3.5 x	311	403	10.9 x	25.45	2.5 x
98	QL Resources	7084-MY	1.2	3,034	3,280	6%	-9%	0%	1,359	1,406	2.3 x	170	189	17.3 x	0.25	4.9 x
99	Bluestar Adisseo	600299-CN	1.2	3,202	3,355	14%	-25%	6%	1,824	2,164	1.6 x	253	377	8.9 x	0.78	1.5 x
100	Cranswick plc	CWK-GB	51.7	2,789	2,964	3%	-28%	7%	2,886	3,220	0.9 x	263	315	9.4 x	20.63	2.5 x
101	Beijing Dbn Technology	002385-CN	0.7	2,816	4,226	57%	-13%	-19%	4,681	5,141	0.8 x	222	178	23.7 x	0.32	2.1 x
102	Fujian Sunner Development	002299-CN	2.3	2,820	3,745	54%	-16%	-6%	2,558	3,039	1.2 x	309	501	7.5 x	1.15	2.0 x
103	Leroy Seafood	LSG-NO	4.4	2,637	3,409	24%	-17%	7%	2,919	2,896	1.2 x	449	504	6.8 x	2.89	1.5 x
104	National Agricultural Development	6010-SA	7.9	2,381	2,139	22%	-57%	6%	852	991	2.2 x	153	174	12.3 x	3.18	2.5 x
105	Schouw & Co	SCHO-DK	77.2	1,968	2,911	12%	-22%	2%	5,409	5,247	0.6 x	414	409	7.1 x	65.76	1.2 x
106	Genus plc	GNS-GB	22.3	1,472	1,778	63%	-17%	-19%	861	839	2.1 x	139	128	13.9 x	11.08	2.0 x
107	Twist Bioscience	TWST	34.3	1,984	1,763	26%	-67%	-7%	245	293	6.0 x	(185)	(151)	-	10.21	3.4 x
108	Bell Food Group AG	BELL-CH	299.8	1,884	2,836	9%	-7%	-1%	5,178	5,070	0.6 x	388	384	7.4 x	266.37	1.1 x
109	Nissui Corporation	1332-JP	6.3	1,982	3,509	4%	-34%	18%	5,677	5,349	0.7 x	334	331	10.6 x	5.25	1.2 x

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110	CVS Group plc	CVSG-GB	12.3	883	1,182	131%	-8%	-43%	747	835	1.4 x	149	163	7.3 x	4.70	2.6 x
111	Dongwon Industries	006040-KR	28.4	1,322	2,875	40%	-29%	42%	6,702	6,941	0.4 x	571	622	4.6 x	55.61	0.5 x
112	Godrej Agrovet	540743-IN	5.8	1,122	1,355	20%	-13%	-13%	1,143	1,184	1.1 x	64	84	16.2 x	1.48	4.0 x
113	Vimian Group AB	VIMIAN-SE	3.0	1,549	1,741	19%	-41%	7%	357	392	4.4 x	98	117	14.9 x	1.16	2.6 x
114	BayWa	BYW6-DE	27.2	981	8,922	62%	-10%	-21%	25,954	25,626	0.3 x	667	744	12.0 x	23.25	1.2 x
115	Inghams Group	ING-AU	2.3	871	2,091	25%	-26%	-13%	1,955	2,075	1.0 x	279	304	6.9 x	0.40	5.9 x
116	Maruha Nichiro Corp.	1333-JP	19.6	994	3,197	6%	-18%	0%	7,556	-	-	-	-	-	27.00	0.7 x
117	Shandong Longda	002726-CN	0.9	1,011	1,340	36%	-12%	-18%	2,326	-	-	47	-	-	0.32	2.9 x
118	Elders Limited	ELD-AU	6.1	963	1,277	7%	-44%	19%	2,119	2,002	0.6 x	143	124	10.3 x	3.60	1.7 x
119	Hilton Food Group plc	HFG-GB	10.6	954	1,436	6%	-28%	4%	5,034	5,065	0.3 x	191	200	7.2 x	3.91	2.7 x
120	COFCO Joycome Foods	1610-HK	0.2	972	1,509	31%	-13%	-12%	1,607	1,862	0.8 x	123	138	10.9 x	0.28	0.8 x
121	China Modern Dairy	1117-HK	0.1	657	2,375	60%	-6%	-11%	1,864	2,051	1.2 x	291	352	6.7 x	0.20	0.4 x
122	Australian Agricultural	AAC-AU	0.9	535	844	23%	-18%	-7%	207	204	4.1 x	45	31	26.8 x	1.57	0.6 x
123	China Youran Dairy	9858-HK	0.2	592	4,264	86%	-8%	-17%	2,587	2,810	1.5 x	548	613	7.0 x	0.41	0.4 x
124	Farm Fresh Bhd.	5306-MY	0.3	554	615	19%	-28%	3%	136	157	3.9 x	21	26	23.9 x	0.07	4.0 x
125	Zhanjiang Guolian Aquatic	300094-CN	0.6	662	835	94%	-32%	-11%	741	-	-	30	-	-	0.35	1.7 x
126	Oceana Group	OCE-ZA	3.7	486	580	13%	-13%	4%	533	586	1.0 x	90	107	5.4 x	3.41	1.1 x
127	Benchmark Holdings	BMK-GB	0.6	415	518	9%	-26%	29%	215	218	2.4 x	43	45	11.4 x	0.45	1.3 x
128	Shandong Delisi Food	002330-CN	0.6	399	367	58%	-22%	-20%	446	-	-	15	-	-	0.53	1.2 x

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129	GFPT Public	GFPT-TH	0.3	423	531	11%	-21%	0%	529	540	1.0 x	65	74	7.2 x	0.38	0.9 x
130	Aker Biomarine	AKBM-NO	5.9	520	885	9%	-53%	31%	335	375	2.4 x	70	97	9.2 x	3.91	1.5 x
131	Astral Foods	ARL-ZA	7.5	321	359	26%	-8%	4%	1,047	1,015	0.4 x	(17)	79	4.6 x	5.52	1.4 x
132	Japfa	UD2-SG	0.2	406	2,089	5%	-35%	24%	4,429	4,526	0.5 x	251	278	7.5 x	0.37	0.5 x
133	Salmon Evolution	SALME-NO	0.6	245	274	35%	-12%	-11%	15	52	5.3 x	(7)	12	22.4 x	0.43	1.4 x
134	Atria Oyj	ATRAV-FI	10.5	200	623	31%	-5%	-9%	1,895	1,866	0.3 x	114	119	5.2 x	14.92	0.7 x
135	Phibro Animal Health	PAHC	12.9	263	944	24%	-27%	12%	978	998	0.9 x	113	118	8.0 x	6.69	1.9 x
136	Animalcare Group plc	ANCR-GB	2.7	159	161	11%	-24%	22%	94	93	1.7 x	17	14	11.1 x	1.64	1.6 x
137	Zomedica Pharmaceuticals	ZOM	0.1	143	55	68%	-18%	-27%	25	-	-	-	-	-	0.24	0.6 x
138	Dyadic International	DYAI	1.7	48	41	44%	-29%	3%	3	4	9.8 x	-	-	-	0.20	8.2 x
139	Apiam Animal Health	AHX-AU	0.2	42	112	58%	-38%	18%	124	-	-	-	-	-	0.44	0.5 x
140	Fukutome Meat Packers	2291-JP	9.9	34	58	13%	-4%	-4%	183	-	-	-	-	-	4.87	2.0 x
141	Japan Animal Referral	6039-JP	12.9	37	53	7%	-11%	10%	29	-	-	-	-	-	9.45	1.4 x
142	AquaBounty	AQB	2.0	8	8	504%	-22%	-29%	2	1	5.7 x	(25)	(15)	-	42.89	0.0 x

			Price	Mkt Cap (\$ Mns)	Ent Val (\$ Mns)	Price Performance			Sales			EBITDA			Book Value	
						% to High	% to Low	% YTD	FY0	FY1	EV/Sales	FY0	FY1	EV/EBITDA	Book/Share	P/Book
Peer Set																
CEA		Ticker		7,986	10,982			2%	10,864	10,584	1.0 x	1,177	1,321	8.3 x		2.2 x
143	Signify NV	LIGHT-NL	30.9	3,962	5,226	11%	-24%	-6%	7,282	6,902	0.8 x	846	871	6.0 x	24.09	1.3 x
144	Gibraltar Industries	ROCK	80.5	2,452	2,398	9%	-41%	2%	1,374	1,439	1.7 x	202	227	10.6 x	30.06	2.7 x
145	Cresco Labs	CL-CA	2.1	659	1,196	35%	-51%	51%	771	744	1.6 x	174	195	6.1 x	1.45	1.4 x
146	SNDL	SNDL-US	2.0	527	501	33%	-38%	22%	671	729	0.7 x	22	32	15.8 x	3.50	0.6 x
147	GrowGeneration	GRWG	2.9	176	153	75%	-38%	14%	226	210	0.7 x	(6)	(2)	-	2.82	1.0 x
148	Village Farms	VFF	1.2	137	183	27%	-56%	63%	286	305	0.6 x	8	12	14.9 x	2.74	0.5 x
149	Hydrofarm Holdings	HYFM	1.1	49	991	57%	-38%	18%	227	194	5.1 x	0	3	296.7 x	(10.86)	-0.1 x
150	Local Bounti	LOCL	2.9	24	335	199%	-60%	38%	28	62	5.4 x	(69)	(17)	-	1.84	1.6 x

			Price Performance						Sales			EBITDA			Book Value	
			Price	Mkt Cap (\$ Mns)	Ent Val (\$ Mns)	% to High	% to Low	% YTD	FY0	FY1	EV/Sales	FY0	FY1	EV/EBITDA	Book/Share	P/Book
Peer Set																
Seeds			Ticker	4,302	6,481			-15%	6,062	6,082	1.1 x	611	652	9.9 x		1.4 x
151	Shandong Denghai Seeds	002041-CN	1.4	1,207	806	94%	-11%	-26%	192	199	4.0 x	46	34	23.5 x	0.54	2.6 x
152	Sakata Seed	1377-JP	24.6	1,168	891	23%	-6%	-5%	555	543	1.6 x	106	101	8.8 x	21.88	1.1 x
153	Tres Tentos Agroindustrial	TTEN3-BR	2.1	1,047	1,061	42%	-13%	-15%	1,802	1,888	0.6 x	102	151	7.0 x	1.34	1.6 x
154	Central Garden & Pet Company	CENT	42.8	474	3,325	21%	-17%	-15%	3,310	3,239	1.0 x	336	338	9.8 x	27.01	1.6 x
155	Kaveri Seed	532899-IN	7.5	384	316	23%	-19%	1%	129	137	2.3 x	30	35	9.2 x	3.61	2.1 x
156	S&W Seed	SANW	0.5	21	81	198%	-24%	-31%	74	75	1.1 x	(9)	(7)	-	1.31	0.4 x

Peer Set	Ticker	Price	Mkt Cap (\$ Mns)	Ent Val (\$ Mns)	Price Performance			Sales			EBITDA			Book Value		
					% to High	% to Low	% YTD	FY0	FY1	EV/Sales	FY0	FY1	EV/EBITDA	Book/Share	P/Book	
Crop Protection			114,431	131,157			4%	56,316	54,678	2.4 x	10,125	9,723	13.5 x		1.9 x	
157	Corteva	CTVA	57.7	40,304	40,403	10%	-25%	20%	17,230	17,556	2.3 x	3,380	3,587	11.3 x	35.70	1.6 x
158	Rentokil Initial plc	RTO-GB	6.0	15,043	19,070	43%	-21%	7%	6,874	6,847	2.8 x	1,531	1,559	12.2 x	2.05	2.9 x
159	FMC Corporation	FMC	63.7	7,947	11,773	97%	-22%	1%	4,487	4,541	2.6 x	978	974	12.1 x	35.35	1.8 x
160	PI Industries	523642-IN	46.4	7,038	6,647	5%	-21%	10%	785	936	7.1 x	187	240	27.7 x	6.68	6.9 x
161	UPL Limited	512070-IN	5.5	4,103	8,548	70%	-1%	-23%	6,608	5,076	1.7 x	1,334	608	14.1 x	4.61	1.2 x
162	Bayer CropScience	506285-IN	62.9	2,825	2,766	19%	-22%	-5%	622	644	4.3 x	112	133	20.8 x	8.35	7.5 x
163	Sichuan Hebang	603077-CN	0.3	2,810	2,655	35%	-4%	-3%	1,897	-	-	780	-	-	0.31	1.0 x
164	Jiangsu Yangnong Chemical	600486-CN	7.1	2,882	2,696	51%	-14%	-20%	1,590	1,883	1.4 x	357	382	7.1 x	3.32	2.1 x
165	Sumitomo Chemical India	542920-IN	4.2	2,079	1,979	31%	-2%	-14%	424	337	5.9 x	81	51	38.8 x	0.61	6.9 x
166	Tessenderlo Group NV	TESB-BE	26.2	2,239	1,742	32%	-4%	13%	3,169	3,076	0.6 x	345	351	5.0 x	33.04	0.8 x
167	Atul Limited	500027-IN	68.8	2,026	2,006	33%	0%	-20%	663	571	3.5 x	97	81	24.9 x	19.91	3.5 x
168	Shandong Weifang Rainbow	301035-CN	9.2	2,568	2,885	31%	-23%	-7%	2,106	1,575	1.8 x	267	191	15.1 x	3.25	2.8 x
169	KWS SAAT SE &	KWS-DE	53.5	1,766	2,702	30%	-8%	-10%	1,913	1,876	1.4 x	321	346	7.8 x	37.13	1.4 x
170	Anhui Guangxin Agrochemical	603599-CN	2.0	1,839	906	58%	-22%	-1%	1,310	-	-	423	-	-	1.43	1.4 x
171	Nufarm Limited	NUF-AU	3.6	1,371	2,115	13%	-24%	1%	2,272	2,365	0.9 x	286	283	7.5 x	3.53	1.0 x
172	Zhejiang Xinan Chemical	600596-CN	1.1	1,281	1,714	87%	-19%	-13%	3,147	-	-	567	-	-	1.32	0.8 x

173	Corbion NV	CRBN-NL	21.4	1,270	2,057	56%	-28%	0%	1,570	1,443	1.4 x	206	182	11.3 x	11.63	1.8 x
174	Lier Chemical	002258-CN	1.2	992	1,489	88%	-8%	-27%	1,086	1,091	1.4 x	188	243	6.1 x	1.30	1.0 x
175	Lianhe Chemical	002250-CN	0.8	766	1,403	148%	-18%	-17%	1,141	-	-	209	-	-	1.02	0.8 x
176	Bioceres Crop Solutions	BIOX	12.7	795	1,006	12%	-23%	-8%	420	492	2.0 x	81	93	10.8 x	4.81	2.6 x
177	Nantong Jiangshan Agrochemical	600389-CN	1.8	781	611	122%	-12%	-26%	1,214	-	-	336	-	-	1.16	1.5 x
178	Sichuan Guoguang Agrochemical	002749-CN	2.1	928	807	17%	-41%	25%	240	274	3.0 x	41	66	12.3 x	0.54	3.9 x
179	Hextar Global Berhad	5151-MY	0.2	745	802	9%	-26%	14%	140	141	5.7 x	27	17	47.2 x	0.01	13.4 x
180	Shenzhen Noposion Crop Science	002215-CN	1.3	1,016	1,970	9%	-39%	10%	616	557	3.5 x	78	91	21.6 x	0.53	2.4 x
181	Kumiai Chemical	4996-JP	5.5	731	877	49%	-4%	6%	1,136	1,073	0.8 x	147	110	7.9 x	7.32	0.8 x
182	BSM Chemical Co	300796-CN	2.1	752	732	20%	-31%	-8%	110	-	-	33	-	-	0.64	3.3 x
183	Dhanuka Agritech	507717-IN	12.3	559	555	27%	-38%	-3%	205	217	2.6 x	34	40	14.0 x	3.12	3.9 x
184	Hailir Pesticides & Chemicals	603639-CN	2.0	690	739	48%	-20%	-7%	655	-	-	-	-	-	1.39	1.5 x
185	Anhui Huilong Agricultural	002556-CN	0.7	665	1,263	73%	-24%	-13%	2,636	-	-	135	-	-	0.57	1.2 x
186	CHUNBO	278280-KR	64.5	645	948	218%	-19%	-24%	144	183	5.2 x	15	34	27.9 x	22.18	2.9 x
187	Rallis India	500355-IN	3.0	584	584	18%	-25%	0%	363	327	1.8 x	28	36	16.1 x	1.13	2.7 x
188	India Pesticides	543311-IN	2.4	280	276	112%	-1%	-44%	107	-	-	24	-	-	0.83	2.9 x
189	Caribou Biosciences	CRBU	5.1	464	153	67%	-33%	-10%	34	12	12.5 x	-	(169)	-	4.17	1.2 x
190	Jiangsu Changqing Agrichemical	002391-CN	0.7	481	732	43%	-19%	-17%	617	-	-	88	-	-	1.01	0.7 x
191	Nihon Nohyaku	4997-JP	5.4	446	576	1%	-28%	24%	759	-	-	-	-	-	6.17	0.9 x

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192	Precigen	PGEN	1.5	361	305	30%	-42%	8%	6	6	55.3 x	(100)	(91)	-	0.48	3.0 x
193	Limin Group	002734-CN	0.9	340	641	53%	-24%	-18%	729	-	-	82	-	-	1.02	0.9 x
194	American Vanguard Corporation	AVD	13.0	372	523	69%	-35%	18%	579	627	0.8 x	54	66	8.0 x	12.86	1.0 x
195	Jiangsu Flag Chemical	300575-CN	0.8	281	491	119%	-18%	-23%	-	-	-	-	-	-	0.64	1.3 x
196	Cheerwin Group	6601-HK	0.2	276	(112)	14%	-22%	10%	224	248	-0.4 x	29	30	-3.7 x	0.31	0.7 x
197	Astec Lifesciences	533138-IN	12.7	250	301	46%	-22%	-3%	77	51	5.9 x	9	(0)	-	2.42	5.3 x
198	Insecticides	532851-IN	5.9	173	193	47%	-15%	-28%	218	244	0.8 x	15	21	9.3 x	4.05	1.4 x
199	Hokko Chemical	4992-JP	8.4	253	188	17%	-31%	23%	310	297	0.6 x	-	-	-	13.15	0.6 x
200	OAT Agrio	4979-JP	14.1	156	214	6%	-31%	24%	192	98	2.2 x	-	-	-	8.92	1.6 x
201	Fumakilla Limited	4998-JP	7.8	129	174	12%	-12%	-3%	452	-	-	26	-	-	8.88	0.9 x
202	Agro-Kanesho	4955-JP	8.3	111	43	64%	-12%	-15%	104	-	-	-	-	-	10.79	0.8 x
203	Plant Health Care	PHC-GB	0.0	15	10	230%	-10%	-4%	12	17	0.6 x	(3)	(0)	-	0.03	1.4 x

			Price	Mkt Cap (\$ Mns)	Ent Val (\$ Mns)	Price Performance			Sales			EBITDA			Book Value	
						% to High	% to Low	% YTD	FY0	FY1	EV/Sales	FY0	FY1	EV/EBITDA	Book/Share	P/Book
Peer Set																
Fertilizers		Ticker	302,685	393,828				-3%	306,806	286,958	1.4 x	49,141	44,583	8.8 x		1.5 x
204	BASF SE	BAS-DE	57.2	51,097	73,155	4%	-26%	6%	74,562	74,508	1.0 x	8,301	8,850	8.3 x	42.69	1.3 x
205	DuPont de Nemours	DD	76.7	32,016	38,907	3%	-20%	0%	12,068	12,129	3.2 x	2,942	2,894	13.4 x	56.45	1.4 x
206	Nutrien Ltd.	NTR-CA	54.4	26,894	38,564	38%	-12%	-4%	28,082	26,769	1.4 x	6,058	5,502	7.0 x	49.56	1.1 x
207	Industries of Qatar Co.	IQCD-QA	3.3	19,890	15,925	20%	-10%	-7%	3,225	3,434	4.6 x	1,188	1,195	13.3 x	1.81	1.8 x
208	SABIC Agri-Nutrients	2020-SA	32.7	15,561	12,953	19%	-5%	-11%	2,942	2,927	4.4 x	1,229	1,257	10.3 x	9.94	3.3 x
209	CF Industries Holdings	CF	83.2	15,621	19,515	6%	-28%	5%	6,631	5,923	3.3 x	2,760	2,429	8.0 x	30.38	2.7 x
210	Qinghai Salt Lake	000792-CN	2.2	12,057	10,369	49%	-18%	2%	2,986	2,605	4.0 x	1,425	1,206	8.6 x	0.81	2.7 x
211	Mosaic Company	MOS	32.5	10,442	14,300	51%	-10%	-9%	13,696	12,350	1.2 x	2,739	2,488	5.7 x	37.92	0.9 x
212	Eastman Chemical	EMN	100.2	11,786	16,245	2%	-31%	12%	9,210	9,456	1.7 x	1,591	1,810	9.0 x	46.53	2.2 x
213	Yara International ASA	YAR-NO	31.8	8,096	11,805	40%	-5%	-11%	15,547	15,158	0.8 x	1,695	2,093	5.6 x	27.75	1.1 x
214	Shandong Hualu-Hengsheng	600426-CN	3.6	7,685	8,778	40%	-10%	-6%	3,772	4,834	1.8 x	907	1,128	7.8 x	1.89	1.9 x
215	Fertiglobe plc	FERTIGLOBE-AE	0.8	6,420	7,841	49%	-11%	-4%	2,416	2,503	3.1 x	996	996	7.9 x	0.17	4.4 x
216	OCI NV	OCI-NL	27.4	5,786	8,945	24%	-30%	-5%	5,022	5,176	1.7 x	1,220	1,523	5.9 x	4.30	6.4 x
217	Mitsui Chemicals	4183-JP	28.6	5,747	10,119	8%	-18%	2%	13,891	11,251	0.9 x	1,620	1,104	9.2 x	28.65	1.0 x
218	Sociedad Quimica	SQM	49.2	7,021	9,235	70%	-22%	-18%	7,468	5,534	1.7 x	3,264	2,349	3.9 x	19.45	2.5 x
219	ICL Group	ICL-IL	5.3	6,843	9,336	28%	-19%	4%	7,536	7,046	1.3 x	1,754	1,408	6.6 x	4.31	1.2 x

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220	Nissan Chemical	4021-JP	37.8	5,250	5,372	22%	-11%	-3%	1,671	1,471	3.7 x	463	408	13.2 x	10.34	3.7 x
221	Yunnan Yuntianhua	600096-CN	2.6	4,817	7,158	17%	-25%	20%	9,566	9,729	0.7 x	1,334	1,458	4.9 x	1.42	1.8 x
222	Sumitomo Chemical	4005-JP	2.2	3,706	15,574	55%	-13%	-7%	21,210	16,149	1.0 x	1,185	(501)	-	4.69	0.5 x
223	Abou Kir Fertilizers & Chemical	ABUK-EG	1.3	1,680	823	164%	-8%	-51%	698	469	1.8 x	378	-	-	0.34	3.9 x
224	Coromandel	506395-IN	12.9	3,799	3,435	20%	-15%	-14%	3,599	2,684	1.3 x	355	292	11.8 x	3.69	3.5 x
225	Incitec Pivot Limited	IPL-AU	1.9	3,662	4,731	19%	-9%	-3%	3,832	3,470	1.4 x	775	566	8.4 x	2.16	0.9 x
226	Scotts Miracle-Gro	SMG	74.6	4,229	7,554	5%	-41%	17%	3,551	3,607	2.1 x	428	541	14.0 x	(6.80)	-11.0 x
227	Tata Chemicals Limited	500770-IN	13.0	3,301	3,965	26%	-13%	-2%	2,052	1,873	2.1 x	469	350	11.3 x	10.07	1.3 x
228	K+S AG	SDF-DE	15.6	2,797	2,858	35%	-16%	-1%	4,216	3,756	0.8 x	780	615	4.6 x	39.22	0.4 x
229	Sichuan New Energy Power	000155-CN	1.5	2,154	3,415	62%	-19%	-22%	553	683	5.0 x	330	358	9.5 x	0.56	2.6 x
230	Chambal Fertilisers & Chemicals	500085-IN	4.1	1,707	1,456	18%	-26%	-9%	3,363	2,260	0.6 x	220	269	5.4 x	2.22	1.8 x
231	YONFER Agricultural Technology	000902-CN	1.5	1,842	1,794	16%	-13%	-5%	2,319	-	-	304	-	-	1.01	1.5 x
232	Andersons	ANDE	57.4	1,941	2,216	3%	-38%	0%	14,750	13,467	0.2 x	405	340	6.5 x	37.96	1.5 x
233	Gujarat State Fertilizers & Chemicals	500690-IN	2.3	935	645	65%	-37%	-19%	1,374	1,087	0.6 x	-	75	8.6 x	3.71	0.6 x
234	E.I.D.-Parry	500125-IN	6.5	1,161	1,314	22%	-17%	-2%	350	352	3.7 x	32	31	43.0 x	4.49	1.5 x
235	Hubei Yihua Chemical	000422-CN	1.2	1,287	2,433	67%	-20%	-18%	2,355	2,413	1.0 x	260	296	8.2 x	0.86	1.4 x
236	Chengdu Wintruu	002539-CN	1.0	1,253	2,116	59%	-18%	-10%	3,008	3,132	0.7 x	-	-	-	0.95	1.1 x
237	Sichuan Development Lomon	002312-CN	1.0	1,328	2,148	50%	-30%	-1%	1,448	-	-	263	-	-	0.67	1.5 x
238	Deepak Fertilisers & Petrochemicals	500645-IN	6.1	764	1,100	42%	-10%	-26%	1,372	1,027	1.1 x	263	134	8.2 x	4.93	1.2 x

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239	Compass Minerals	CMP	15.7	650	1,524	153%	-17%	-38%	1,205	1,208	1.3 x	201	193	7.9 x	11.15	1.4 x
240	Paradeep Phosphates Ltd.	543530-IN	0.8	649	1,078	30%	-22%	-2%	1,613	1,480	0.7 x	99	78	13.8 x	0.51	1.6 x
241	Sinofert Holdings	297-HK	0.1	736	424	47%	-10%	-10%	3,010	-	-	-	-	-	0.20	0.5 x
242	CVR Partners, LP	UAN	78.6	831	1,336	33%	-23%	20%	-	-	-	-	-	-	28.66	2.7 x
243	PetroVietnam Ca Mau Fertilizer	DCM-VN	1.4	750	353	9%	-31%	6%	511	515	0.7 x	58	30	11.7 x	0.76	1.9 x
244	Advansix	ASIX	28.6	764	1,004	43%	-16%	-5%	1,534	1,539	0.7 x	154	133	7.5 x	27.63	1.0 x
245	Anhui Sierte Fertilizer	002538-CN	0.7	582	488	66%	-18%	-20%	709	-	-	124	-	-	0.85	0.8 x
246	Engro Corporation Limited	ENGRO-PK	1.3	694	1,521	8%	-40%	23%	-	-	-	-	-	-	0.97	1.3 x
247	Grupa Azoty Spolka Akcyjna	ATT-PL	5.6	555	2,930	51%	-11%	-11%	5,761	3,405	0.9 x	581	(294)	-	18.24	0.3 x
248	Engro Fertilizers Limited	EFERT-PK	0.5	705	628	6%	-53%	32%	792	920	0.7 x	-	-	-	0.13	4.1 x
249	Omnia Holdings Limited	OMN-ZA	3.1	515	438	15%	-12%	-9%	1,461	1,152	0.4 x	147	123	3.6 x	3.36	0.9 x
250	LSB Industries	LXU	8.8	641	953	33%	-23%	-6%	594	516	1.8 x	133	132	7.2 x	7.09	1.2 x
251	PetroVietnam Fertilizer and Chemicals	DPM-VN	1.4	565	299	22%	-20%	5%	551	507	0.6 x	29	41	7.2 x	1.17	1.2 x
252	Fauji Fertilizer Company Limited	FFC-PK	0.5	578	369	16%	-34%	13%	569	734	0.5 x	-	-	-	0.41	1.1 x
253	China XLX Fertiliser Ltd.	1866-HK	0.5	581	2,505	21%	-23%	7%	3,268	3,403	0.7 x	540	544	4.6 x	0.89	0.5 x
254	China BlueChemical Ltd	3983-HK	0.3	519	(89)	11%	-25%	14%	1,797	-	-	-	-	-	0.53	0.5 x
255	Kunming Chuan Jin Nuo Chemical	300505-CN	1.7	456	467	100%	-36%	-30%	-	-	-	-	-	-	1.21	1.4 x
256	Fatima Fertilizer Company	FATIMA-PK	0.1	300	240	15%	-40%	13%	-	-	-	-	-	-	0.20	0.7 x
257	Intrepid Potash	IPI	20.9	274	269	36%	-17%	-13%	241	203	1.3 x	41	26	10.2 x	53.44	0.4 x

258	Mangalore Chemicals & Fertilizers	530011-IN	1.2	144	147	55%	-10%	-17%	440	466	0.3 x	37	52	2.8 x	0.91	1.3 x
259	Itafos	IFOS-CA	1.0	187	260	65%	-20%	-1%	466	447	0.6 x	132	133	2.0 x	1.32	0.7 x
260	Fauji Fertilizer Bin Qasim	FFBL-PK	0.1	127	64	19%	-62%	-13%	690	650	0.1 x	-	-	-	0.12	0.8 x
261	Valuence Holdings	9270-JP	6.7	91	168	218%	-32%	-31%	509	547	0.3 x	-	-	-	3.91	1.7 x
262	Katakura & Co-op Agri	4031-JP	7.3	74	144	78%	-11%	10%	375	-	-	-	-	-	16.93	0.4 x
263	Binh Dien Fertilizer	BFC-VN	1.2	70	115	9%	-45%	21%	-	-	-	-	-	-	0.76	1.6 x
264	Verde AgriTech Ltd.	NPK-CA	0.9	47	76	254%	-26%	-26%	28	32	2.4 x	1	2	34.8 x	0.64	1.4 x
265	Neochim AD	NEOH-BG	10.0	27	21	124%	-4%	-26%	-	-	-	-	-	-	31.54	0.3 x

Peer Set	Price	Mkt Cap (\$ Mns)	Ent Val (\$ Mns)	Price Performance			Sales			EBITDA			Book Value			
				% to High	% to Low	% YTD	FY0	FY1	EV/Sales	FY0	FY1	EV/EBITDA	Book/Share	P/Book		
Food Processing	Ticker	696,997	872,157			1%	454,177	453,060	1.9 x	68,413	70,297	12.4 x		2.3 x		
266	Nestle S.A.	NESN-CH	106.3	283,838	338,110	23%	-5%	-6%	105,440	103,234	3.3 x	21,862	21,846	15.5 x	15.14	7.0 x
267	Unilever PLC	ULVR-GB	50.2	125,818	153,524	12%	-8%	4%	64,146	64,548	2.4 x	12,422	12,730	12.1 x	7.93	6.3 x
268	Ecolab	ECL	230.9	65,925	73,751	0%	-32%	16%	15,320	16,041	4.6 x	3,040	3,483	21.2 x	28.18	8.2 x
269	Danone SA	BN-FR	64.7	43,839	52,914	7%	-18%	5%	29,858	29,437	1.8 x	4,897	5,045	10.5 x	27.22	2.4 x
270	Ball Corporation	BALL	67.4	21,262	29,641	1%	-36%	17%	14,029	12,937	2.3 x	2,108	2,017	14.7 x	11.94	5.6 x
271	Avery Dennison	AVY	223.3	17,976	21,163	1%	-29%	10%	8,364	8,759	2.4 x	1,255	1,422	14.9 x	26.43	8.4 x
272	Packaging Corporation of America	PKG	189.8	17,009	19,041	1%	-36%	16%	7,802	7,930	2.4 x	1,604	1,621	11.7 x	44.60	4.3 x
273	Lamb Weston Holdings	LW	106.5	15,380	18,934	10%	-27%	-1%	5,351	6,567	2.9 x	1,226	1,503	12.6 x	12.18	8.7 x
274	International Paper Company	IP	39.0	13,515	20,560	6%	-26%	8%	18,916	18,773	1.1 x	2,233	2,250	9.1 x	24.14	1.6 x
275	WestRock Company	WRK	49.5	12,707	21,608	0%	-46%	19%	20,310	19,634	1.1 x	3,128	2,667	8.1 x	39.49	1.3 x
276	WH Group	288-HK	0.7	8,459	11,135	9%	-25%	2%	26,236	26,967	0.4 x	1,968	2,585	4.3 x	0.75	0.9 x
277	Ingredion Incorporated	INGR	116.9	7,661	9,668	2%	-23%	8%	8,160	7,995	1.2 x	1,192	1,225	7.9 x	54.26	2.2 x
278	Pilgrim's Pride	PPC	34.3	8,127	11,021	5%	-42%	24%	17,362	18,063	0.6 x	1,025	1,579	7.0 x	14.07	2.4 x
279	Sprouts Farmers Market	SFM	64.5	6,526	7,983	2%	-50%	34%	6,837	7,318	1.1 x	527	547	14.6 x	11.35	5.7 x
280	Sealed Air Corporation	SEE	37.2	5,375	9,814	30%	-23%	2%	5,489	5,397	1.8 x	1,107	1,102	8.9 x	3.80	9.8 x
281	Silgan Holdings	SLGN	48.6	5,172	8,189	13%	-22%	7%	5,988	6,084	1.3 x	887	926	8.8 x	17.74	2.7 x

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282	Exponent	EXPO	82.7	4,181	4,023	23%	-22%	-6%	497	487	8.3 x	151	142	28.3 x	7.04	11.7 x
283	SCG Packaging Public	SCGP-TH	0.8	3,353	5,025	74%	-5%	-26%	3,625	3,864	1.3 x	489	532	9.4 x	0.49	1.6 x
284	NH Foods Limited	2282-JP	33.6	3,461	4,703	8%	-20%	-1%	9,372	8,415	0.6 x	367	528	8.9 x	33.36	1.0 x
285	CJ CheilJedang	097950-KR	218.4	3,288	14,207	16%	-9%	-11%	21,852	21,633	0.7 x	2,116	2,160	6.6 x	331.53	0.7 x
286	John Bean Technologies	JBT	104.9	3,335	3,518	20%	-14%	5%	1,664	1,757	2.0 x	273	301	11.7 x	46.73	2.2 x
287	Suedzucker AG	SZU-DE	14.4	2,931	6,392	45%	-8%	-8%	10,190	10,992	0.6 x	1,148	1,367	4.7 x	15.36	0.9 x
288	Asia-Potash International	000893-CN	2.7	2,501	2,631	57%	-8%	-26%	504	600	4.4 x	307	-	-	1.67	1.6 x
289	Cal-Maine Foods	CALM	58.9	2,600	2,316	10%	-28%	2%	3,146	2,290	1.0 x	1,070	407	5.7 x	35.15	1.7 x
290	Sao Martinho S.A.	SMT03-BR	6.2	2,195	3,777	37%	-17%	5%	1,415	1,320	2.9 x	746	652	5.8 x	3.74	1.7 x
291	MGP Ingredients	MGPI	86.1	1,900	2,178	45%	-12%	-12%	837	755	2.9 x	203	218	10.0 x	38.63	2.2 x
292	Hawkins	HWKN	76.8	1,609	1,722	3%	-49%	9%	935	914	1.9 x	-	135	12.7 x	18.94	4.1 x
293	Balrampur Chini Mills	500038-IN	4.3	875	920	34%	-4%	-12%	568	646	1.4 x	63	94	9.8 x	1.87	2.3 x
294	United Natural Foods	UNFI	11.5	683	4,239	147%	-20%	-29%	30,272	30,787	0.1 x	640	493	8.6 x	28.48	0.4 x
295	Mitsui DM Sugar	2109-JP	20.6	672	859	13%	-24%	-1%	1,198	-	-	-	-	-	22.56	0.9 x
296	Calavo Growers	CVGW	27.8	495	592	40%	-23%	-5%	972	588	1.0 x	31	38	15.6 x	11.30	2.5 x
297	Jalles Machado SA	JALL3-BR	1.6	479	1,076	21%	-16%	-2%	327	382	2.8 x	205	242	4.4 x	1.37	1.1 x
298	Rogers Sugar	RSI-CA	3.9	414	747	20%	-8%	-3%	815	895	0.8 x	82	87	8.6 x	2.15	1.8 x
299	Origin Enterprises Plc	OIZ-IE	3.4	370	379	33%	-12%	-10%	2,600	2,248	0.2 x	120	111	3.4 x	3.71	0.9 x
300	Bonduelle SCA	BON-FR	8.1	265	1,050	62%	-2%	-32%	2,528	2,601	0.4 x	156	168	6.2 x	26.12	0.3 x

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301	Natural Grocers by Vitamin Cottage	NGVC	18.1	411	779	7%	-45%	13%	1,141	1,212	0.6 x	61	69	11.2 x	6.76	2.7 x
302	Ranpak Holdings	PACK	7.9	627	1,017	5%	-67%	35%	349	368	2.8 x	77	84	12.1 x	6.92	1.1 x
303	Khon Kaen Sugar	KSL-TH	0.1	285	716	63%	-2%	-16%	533	-	-	82	-	-	0.13	0.5 x
304	Select Harvests Limited	SHV-AU	2.9	351	638	9%	-37%	47%	136	168	3.8 x	(62)	36	17.7 x	2.22	1.3 x
305	BBB Foods Inc.	TBBB	23.8	800	1,141	5%	-21%	NM	-	2,584	0.4 x	-	99	11.5 x	(8.62)	-2.8 x
306	Scales Corp. Ltd.	SCL-NZ	2.0	287	319	9%	-17%	-8%	350	327	1.0 x	42	50	6.4 x	1.58	1.3 x
307	Benson Hill	BHIL	0.2	42	139	820%	-37%	15%	473	129	1.1 x	(48)	(31)	-	0.41	0.5 x

		Price	Mkt Cap (\$ Mns)	Ent Val (\$ Mns)	Price Performance			Sales			EBITDA			Book Value			
					% to High	% to Low	% YTD	FY0	FY1	EV/Sales	FY0	FY1	EV/EBITDA	Book/Share	P/Book		
Peer Set																	
	AgriFinance	Ticker	13,928	19,665			-1%	8,682	8,480	2.3 x	1,447	1,386	14.2 x		0.8 x		
308	Kuala Lumpur Kepong	2445-MY	4.7	5,211	7,262	12%	-6%	0%	5,055	5,171	1.4 x	584	628	11.6 x	2.77	1.7 x	
309	Heilongjiang Agriculture	600598-CN	1.7	3,028	2,532	21%	-	11%	1%	698	741	3.4 x	182	184	13.8 x	0.58	2.9 x
310	Simmons First National	SFNC	19.5	2,439	3,566	7%	-	31%	-2%	826	828	4.3 x	-	-	-	27.37	0.7 x
311	SLC Agricola S.A.	SLCE3-BR	4.0	1,752	3,054	20%	-	16%	2%	1,720	1,392	2.2 x	504	441	6.9 x	2.24	1.8 x
312	BrasilAgro	AGRO3-BR	4.9	504	659	23%	-	10%	-8%	232	184	3.6 x	104	58	11.4 x	3.96	1.2 x
313	Gladstone Land Corp.	LAND	13.3	478	1,095	31%	-7%	-8%	90	93	11.8 x	74	76	14.3 x	20.08	0.7 x	
314	Tejon Ranch Co.	TRC	15.4	413	411	19%	-	4%	10%	45	44	9.3 x	-	-	-	17.47	0.9 x
315	Great Ajax Corp.	AJX	3.8	104	1,085	89%	-	13%	-	15	26	41.0 x	-	-	-	11.07	0.3 x

			Price	Mkt Cap (\$ Mns)	Ent Val (\$ Mns)	Price Performance			Sales			EBITDA			Book Value	
						% to High	% to Low	% YTD	FY0	FY1	EV/Sales	FY0	FY1	EV/EBITDA	Book/Share	P/Book
Peer Set																
Food Producers		Ticker		51,923	61,270			3%	36,914	38,896	1.6 x	5,093	5,823	10.5 x		1.2 x
316	Tata Consumer Products	500800-IN	13.1	12,514	12,123	17%	-35%	1%	1,684	1,830	6.6 x	230	272	44.6 x	2.08	6.3 x
317	Sime Darby Plantation	5285-MY	0.9	6,298	7,894	13%	-4%	-6%	3,825	3,943	2.0 x	707	784	10.1 x	0.56	1.6 x
318	Treasury Wine Estates	TWE-AU	8.1	6,591	7,760	18%	-19%	10%	1,573	1,749	4.4 x	462	522	14.9 x	3.81	2.1 x
319	IOI Corp. Bhd.	1961-MY	0.8	5,285	5,628	10%	-6%	0%	2,492	2,300	2.4 x	422	391	14.4 x	0.39	2.1 x
320	PPB Group Bhd.	4065-MY	3.2	4,623	4,618	16%	-9%	3%	1,243	1,231	3.8 x	63	75	61.5 x	4.00	0.8 x
321	Golden Agri-Resources	E5H-SG	0.2	2,568	4,720	5%	-13%	3%	9,756	10,731	0.4 x	1,032	1,353	3.5 x	0.38	0.5 x
322	First Resources Ltd	EB5-SG	1.0	1,608	1,762	19%	-3%	-5%	981	1,061	1.7 x	286	367	4.8 x	0.81	1.2 x
323	United Plantations Bhd.	2089-MY	5.1	2,109	1,970	4%	-37%	31%	422	456	4.3 x	212	217	9.1 x	1.45	3.5 x
324	Genting Plantations Bhd.	2291-MY	1.3	1,166	1,410	6%	-16%	5%	611	620	2.3 x	150	152	9.3 x	1.25	1.0 x
325	Fresh Del Monte Produce	FDP	25.9	1,234	1,815	17%	-17%	-1%	4,321	4,464	0.4 x	250	249	7.3 x	39.81	0.7 x
326	FGV Holdings Berhad	5222-MY	0.3	1,064	1,892	18%	-6%	-3%	4,111	4,349	0.4 x	236	262	7.2 x	0.34	0.8 x
327	Adecoagro S.A.	AGRO	11.0	1,168	2,289	14%	-28%	-1%	1,442	1,552	1.5 x	460	511	4.5 x	11.83	0.9 x
328	PT Astra Agro Lestari	AALI-ID	0.4	838	998	26%	-4%	-5%	1,369	1,349	0.7 x	155	152	6.5 x	0.72	0.6 x
329	Bumitama Agri Ltd.	P8Z-SG	0.5	892	1,164	15%	-23%	12%	943	893	1.3 x	276	242	4.8 x	0.49	1.0 x
330	PT Sawit Sumbermas Sarana	SSMS-ID	0.1	625	1,091	89%	-9%	-3%	-	-	-	-	-	-	0.01	5.7 x
331	Mission Produce	AVO	11.9	841	1,075	18%	-31%	18%	954	969	1.1 x	48	81	13.3 x	7.13	1.7 x

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332	Vital Farms, Inc.	VITL	23.3	972	875	11%	-57%	48%	472	559	1.6 x	48	60	14.7 x	4.62	5.0 x
333	Hokuto Corporation	1379-JP	12.3	411	514	13%	-6%	5%	536	-	-	-	-	-	10.85	1.1 x
334	Limoneira Company	LMNR	19.6	352	416	11%	-29%	-5%	180	195	2.1 x	(1)	16	25.8 x	9.62	2.0 x
335	TSH Resources Bhd.	9059-MY	0.2	330	396	5%	-18%	13%	223	235	1.7 x	57	58	6.9 x	0.31	0.8 x
336	Alico, Inc.	ALCO	29.3	223	294	6%	-23%	1%	40	80	3.7 x	(16)	7	41.4 x	37.78	0.8 x
337	AUGA group AB	AUG1L-LT	0.3	75	212	55%	-5%	-6%	88	92	2.3 x	2	18	11.4 x	0.29	1.1 x
338	Seeka Limited	SEK-NZ	1.7	72	221	7%	-24%	6%	183	239	0.9 x	14	33	6.6 x	3.73	0.5 x
339	Borges Agricultural & IndustrialNuts	BAIN-ES	2.8	65	134	24%	-9%	-1%	-	-	-	-	-	-	2.88	1.0 x

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