

AUGUST 2021

The Food Institute Report



The Next Generation of Insect Protein



 MESSAGE FROM THE CEO

The Incredible, Edible...Bug?

In western society, we're skittish about insects. We fear spiders, beetles, and other creepy, crawly things. At best, we tolerate critters like chirping crickets.

Yet, despite our generally negative attitude toward bugs, insect protein is poised to make positive strides over the next several years, with the potential to boost food supply chains, lower greenhouse gas emissions, and become a useful tool in the fight against world hunger.

This month, we take a closer look at the insect protein market. If you're skeptical, I understand. But consider this: according to a recent Rabobank report, the demand for insect protein, mainly as an animal feed and pet ingredient, could reach half a million metric tons by 2030.

Further, there are plenty of companies producing insect-based products intended for human consumption, utilizing ingredients like protein-packed cricket flour.

In the August issue, we'll provide insights from industry analysts and the corporate leaders driving the insect

protein market forward. Specifically, our report touches on the following:

- Using insect protein to address environmental issues, like carbon emissions and land and water concerns.
- Companies inspiring innovation in the insect protein segment.
- Popular insect-based products – whether for livestock, pets or humans, insect-based proteins are becoming more mainstream.
- The outlook for the market, featuring analysis from Rabobank.

Personally, I'm a fairly adventurous eater, though I'm not quite there yet when it comes to consuming insects. That said, the potential benefits of insect protein cannot be overlooked, and as someone concerned about the environment and a sustainable future, I'm up for giving it a try at some point down the line.

Just not yet. lck. ●




Brian Choi
MANAGING PARTNER/CEO



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CONTENTS

08.2021 | 94TH YEAR | NO. 08



6

Advocates See Insect Consumption Solving Some Agriculture Challenges

Reducing waste and lowering greenhouse gas emissions are key benefits of insect consumption

8

Taking a Closer Look at Some of the Top Producers

The largest players in the insect protein market have made their mark through animal feed

9

A Few Noteworthy Products in the Insect Protein Market

Edible insects are gaining momentum as a sustainable, nutritious (and according to some, delicious) food source

10

The Prospects for Growth in the Insect Protein Market

While consumption of insect products among humans will grow, market expansion will be driven by animal feed over the next few years

11

Legal

Given the statutory definition under the Food, Drug, and Cosmetic Act, the FDA may not have to say or change anything in order to fully regulate insects intended for use as food

13

Markets: Tomatoes

Recent extreme weather could set the stage for price hikes on everything from pizza sauce to ketchup

16

How High Can Prices Go: Top Consumer Foods

Food inflation update: fresh fruits, vegetables, meats, and latest forecasts

19

Mergers & Acquisitions

A review of PepsiCo's plan to sell Tropicana, Naked, and other juice brands across North America to private equity firm PAI Partners, and other deals

21

Member Spotlight

Twin City Foods, Lakeside Food Sales, Inc., and KeyImpact Sales & Systems Inc.



INTRODUCTION

The Buzz About Insect Protein

BY KELLY BEATON

While the idea of eating dried mealworms or toasted crickets is likely to elicit feelings of uneasiness (or nausea) for most western consumers, you can make a compelling case for consuming insect protein.

In fact, in 2021 a growing list of food companies are doing just that.

Armed with the understanding that 80% of the world's population already eats bugs and consumers are increasingly concerned about sustainability, companies all over the world are tapping into insect protein to propel their business into the future.

The global market for edible insects is expected to surpass \$1.5 billion by year's end, according to *Interesting Engineering*. Further, in a

sign of mainstream acceptance, a European Union panel voted in May to approve the sale of an insect-based food (dried yellow mealworms) for humans for the first time in its history.

"It's the future. Alternative protein isn't coming; it's here, and the demand is only growing," Lauren Keegan, CEO of Canada's Entomo Farms, told *The Food Institute*. "We know insect protein is accepted on a global scale and, while the American palate is decidedly less adventurous than everywhere else, I believe it's only a matter of time before the main concerns are overcome and we start accepting these ingredients as standard."

Insect protein has obvious, larger applications too, with companies

like Grubbly Farms touting protein-packed dried black soldier fly grubs as animal feed.

Meanwhile, the United Nations predicts that, by the year 2050, the world's population will reach nearly 10 billion, and feeding such a sizable population will require the production of approximately twice as much food as traditional farmers currently generate. And, as urban sprawl and deforestation illustrates, Earth is running out of agricultural real estate. As a result, insect protein has become somewhat of a trendy, sustainable alternative.

Insect protein is undeniably high-quality, too. Crickets are 69% protein while beef is just 29%, according to *Interesting Engineering*. Crickets also contain nine essential amino acids, while cricket flour, specifically, contains more calcium than milk. Consider this, too: a mere 2.5 acres could produce 150 tons of insect protein per year, and crickets produce some 80 times less methane gas than cows, which could significantly curb carbon emissions if utilized on a broad scale.

Whether for human or animal consumption, there is a compelling case for insect protein. In the pages ahead, *The Food Institute* takes a closer look at the market and what the buzz is all about. ●

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Advocates See Insect Consumption Solving Some Agriculture Challenges

BY KELLY BEATON

Aimee Rudolph sees significant growth potential for the insect protein market. Her optimism stems, in part, from anecdotes like this:

“We see far more demand than we see supply,” said Rudolph, the vice president of business development for Beta Hatch, a Seattle-based company that converts mealworms and their waste into protein, oils and nutrients for agriculture.

“Someone at [aquafeed company] Skretting, which is one of the largest users of fish meal, will tell you there isn’t enough insect protein being produced in the entire world right now to get even a tenth of what they need in terms of insect protein for their supply chain – and that’s just one company and one product.”

Currently, most farmed insects are used to feed fish and chickens. And with that, insect protein is being developed as animal feed in truly unique ways.

Another producer is Atlanta-based Grubblly Farms, which creates animal feed and fertilizer utilizing black soldier flies, which are bred in large facilities. Eggs are collected and eventually hatch into grubs. The grubs eat through food waste, convert it into fertilizer that can be used in farming and, once the grubs mature, they’re processed into fats and proteins that can be used in a variety of animal feed.

The Argument For Insect Protein

Grubblly’s process highlights a key argument for the utilization of insect protein: it can aid the environment by reducing waste. Further, farmed insects like mealworms require significantly less land and water than livestock, while producing no less than 10 times fewer greenhouse gas emissions per kilogram of weight than pigs, according to the [Food and Agriculture Organization of the United Nations](#).



Aimee Rudolph

Vice President of
Business Development

Beta Hatch

"Insects offer benefits to building a greener future by being able to produce more protein per square foot than any other traditional protein on the market."

—SEAN WARNER, CEO, GRUBBLY FARMS

"Insects offer benefits to building a greener future by being able to produce more protein per square foot than any other traditional protein on the market," Sean Warner, CEO of Grubbly Farms, told *The Food Institute*. "Insects can also be produced at one-fifth the CO2 emissions of [traditional] fishmeal."

Warner also said insect protein is classified as hypoallergenic, because most animals haven't been exposed to large quantities of it and, as a result, haven't developed allergies to it.

The Argument Against Insect Protein

Conversely, an argument against using insects in agriculture relates to efficiency. If, for example, corn is fed to insects, and then insects are fed to chickens, it may be more efficient to simply feed corn to chickens, as mentioned in a recent *Vox* article. Some critics also suggest that bugs may be able to feel pain.

And then there's the obvious "eww factor." Many Americans wouldn't even feel comfortable feeding insect-based products to their pets. Overcoming this factor is the biggest challenge to the insect-protein market, according to Lauren Keegan, CEO of Canada's Entomo Farms, which sells cricket-based foods for both humans and pets. She feels that companies in the space



Sean Warner

CEO

Grubbly Farms

need to pivot from selling insects as whole ingredients and integrate them into products like energy bars.

"There's still some stigma surrounding insects in western society," Warner, the Grubbly CEO, acknowledged. "But, I expect insect protein to only grow in popularity as the public becomes more educated on the industry. This will be done through marketing the benefits and features that insect protein offers to not only your pet, but your planet, too.

"I'm guessing that incorporating insect protein into animal feed will also pave the way for the idea of insects as food for human consumption to become more adopted over the coming decades." ●



HOW MEALWORMS BECOME FOOD FOR HUMANS

To harvest mealworms, producers first separate their eggs from breeding beetles by using a sieving process. Typically fed wheat flour or bran, when the larvae have reached the desired size, they're washed with water before being boiled. They're then dehydrated, often by baking, and are ready for human consumption. Yellow mealworms can be sold whole as snacks, or ground into a powder.



THE VERDICT IS IN

The Food Institute's Kelly Beaton taste tests cricket-based food items. ...

THE PRODUCT

THE REVIEW

Chocolate chirp energy bar

Tastes like ... raisins?

Chocolate protein shake

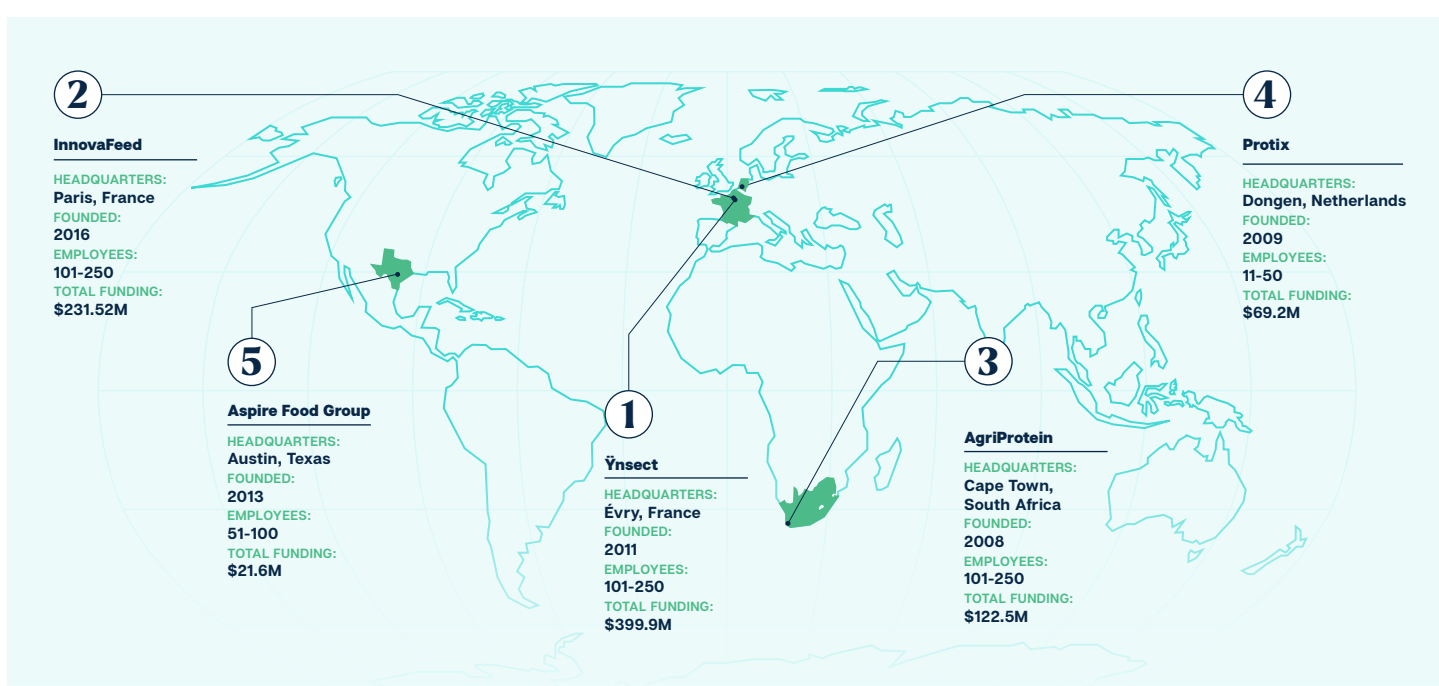
Like Carnation Instant Breakfast, but with a grainy texture

Whole roasted crickets

Don't taste like bugs, per se – more like stale cereal

Peanut butter protein bar

Chewy, and somewhat sweet. The best of the bunch



Taking a Closer Look at Some of the Top Insect Protein Producers

BY GRACE GARWOOD

Today's largest insect producers have made their mark through animal feed.

Amid the category, the most active segments for investment are fish and pet food, followed by livestock, poultry, and swine feed, Darren Streiler, managing director of venture capital at ADM told *The Food Institute*.

Streiler noted that aquaculture has taken an overall lead due to the industry's volatility and environmental challenges. By substituting feed like fish-meal with insect protein, companies like Innovofeed are offering sustainable alternatives to environmental concerns like ocean scraping and overfishing.

Here are five of the top insect protein companies in 2021 by funding volume:

1. Ynsect

Ynsect's bio-refineries farm and transform insects into natural ingredients for pets, fish, plants, and humans. The company cultivates two species of mealworm in some of the world's largest vertical farms.

In April 2021, Ynsect acquired Proti-farm, producers of AdalbaPro, the world's first line of insect-based food ingredients made for human consumption.

2. InnovaFeed

InnovaFeed is a biotech company that produces insects as an alternate source of feed protein for poultry, swine, fish, birds, and small mammals. Through its partnership with DMA, the company constructs insect protein factories next to corn and wheat production plants in order to easily recycle processing side-streams for insect feed.

3. AgriProtein

AgriProtein utilizes insects to convert local food waste into proteins for use in aquaculture, livestock, and pet feeds. The company's products include extruded oil, feed, and soil conditioner produced from black soldier flies and their larvae.

4. Protix

Protix produces insect-based protein by incorporating low-grade organic waste into the production stream. The company

creates protein alternatives for livestock and chicken feed, pet and fish food, and plant fertilizer.

5. Aspire Food Group

Aspire Food Group manufactures a variety of food products made from crickets for animal, plant, and human consumption. The company acquired Exo, producer of cricket protein bars, in March of 2018.

As the benefits of insect protein continue to take shape, major players must conquer the higher operational costs tied to industry research and development before they can compete with existing feed producers on a price per metric ton level.

Furthermore, many countries regulate the use of insect protein as feed for various animal classes.

To ADM's Streiler, industry advancement comes down to competitive pricing and reduced regulations. "Once those hurdles are overcome then this will be a very legitimate player in protein, specifically for animal and aquaculture feed markets." ●

A Few Noteworthy Products in the Insect Protein Market

BY VICTORIA CAMPISI

Whether they're eaten whole, processed into protein powder, or developed as animal feed, edible insects are gaining momentum as a sustainable, nutritious (and according to some, delicious) food source.

Here are some notable companies and products making a name for themselves. ●



2

Ynsect

France-based Ynsect, which cultivates Buffalo and Molitor mealworms, develops products for humans, pets, aquaculture, and plants.

Products for humans include biscuits, sports nutrition items, pasta, meat, and meat substitute products under its Protifarm brand. For animals, including the aquaculture segment, the company produces Ynmeal—an ingredient naturally rich in highly digestible proteins—and Ynoil—a light oil, rich in polyunsaturated fatty acids.



1

Grubblly Farms

Grubblly Farms creates animal feed and fertilizer utilizing black soldier fly grubs (larva). The Atlanta-based company says every pound of grubs harvested recycles 10 pounds of food waste that would otherwise end up in a landfill and release methane gas as it decomposes, and that Grubblly Farms has helped recycle nearly four million pounds of food waste.

4

Don Bugito

Inspired by her Mexican heritage and the traditions of eating edible insects, Monica Martinez created Don Bugito. Farmed and produced in the San Francisco Bay area, Don Bugito is committed to sustainable food practices.

Among the snacks offered are flavored crickets with seeds, granola, cricket powder, toasted cricks and mealworms, and even a DIY chocolate covered crickets kit.



3

Entomo Farms

Norwood, Ontario-based Entomo Farms was founded by brothers Jarrod, Darren, and Ryan Goldin in 2014. The Canadian company claims to be the “first farm to raise insects strictly for human consumption in North America.”

Entomo Farms sells wholesale mealworms and crickets to companies making insect-based protein bars, chips, and other snack foods. It also offers its own retail products, such as whole roasted crickets, insect powders and seasoned insect snacks. Additionally, Entomo sells cricket-based treats and biscuits for pets.



5

Jiminy's

Jiminy's uses insect protein powders to create its line of sustainable dog foods and treats. Over the past year the company estimates that by replacing chicken-based dog food with cricket-based alternatives, it has saved over 116 million gallons of water and eliminated the release of about 20,000 pounds of greenhouse gases into the atmosphere.

Products include hypoallergenic treats in flavors such as Original Recipe, Peas & Sweet Potato, Peanut Butter & Blueberry, Pumpkin & Carrot, all made with crickets.

Earlier this year, Petco expanded its offerings of Jiminy's food and treats to about 800 Petco pet care centers and online at petco.com.

The Prospects for Growth in the Insect Protein Market

BY RICH ALTERMAN



The insect protein market is projected to grow at a CAGR of 26.78% and reach a valuation of about \$1.3 billion by 2025, compared to \$312.4 million in 2019, according to a [ResearchAndMarkets.com report](#).

Despite its promise as a direct consumer food, demand for insect protein over the next several years will be driven by its use as an animal feed and pet food ingredient. With that, demand could reach half a million metric tons by 2030, up from today's market of approximately 10,000 metric tons, according to [Rabobank](#).

Further, 500,000 metric tons by 2030 should represent a turning point for the insect industry. After reaching half a million metric tons, it should

get easier for the industry to expand supply. From that point on, it will take much less time to double or even quadruple production volume and exceed one million metric tons. The pace of acceleration will depend on R&D, changes to legislation regarding feedstocks and end markets, capital inflow to the sector, and marketing. The developments of these factors will determine the speed of growth. It might take the industry a few years, or more than five years, to expand supply from half a million to over one million metric tons, depending on the progress made on the growth factors, Rabobank said.

And while the sustainability aspects and functional benefits support

demand growth, high costs, limited production capacity, and legislative hurdles are limiting market growth.

"Reflecting these opportunities and constraints, we believe the strongest future demand for insect protein lies in the aquafeed market," according to Rabobank's Beyhan de Jong, Senior Analyst – Animal Protein.

Beyond inclusion in aquafeed formulas, there is great potential to develop specialized ingredients and products, likely even beyond feed and human food ingredients. This is potentially the most profitable part of this new industry. Considerable R&D will be needed to achieve all of this.

A Closer Look at Human Consumption

In terms of human consumption, the ease of handling, transporting and storing insect-based protein powders could make them a valuable resource in the global fight against hunger. Further, with conventional agriculture methods not keeping pace with the growing global population (estimated to reach 8.5 billion in 2030, 9.7 billion in 2050, and 10.9 billion in 2100), new food supplies must be developed. As a sustainable, protein-rich food source that requires considerably less land and water than traditional farming, insects hold incredible value for the future food supply.

On the consumer side, insect protein may be appealing to some based on its sustainability and nutritional value. Others may also find insect harvesting a reasonable alternative to livestock farming, though some research indicates insects may experience pain and negative emotional states just as much as a cow or pig. ●



 LEGAL

The Food, Drug, and Cosmetic Act and Insects as Food

BY DAVID L. DURKIN
OLSSON FRANK WEEDA TERMAN MATZ PC

There is a long and storied history of Food and Drug Administration (FDA) regulation of insects, insect parts, and infestations as “filth” that will render food adulterated regardless of whether the insects would actually be “injurious to health.” The agency has [an extensive handbook](#) precisely describing the minuscule amounts of such insect filth that will render a food product actionably adulterated. At the same time, the Food and Agriculture Organization of the United Nations ([FAO has advised](#)) that in many cultures, entomophagy (pronounced “en-to-moph-a-gy,” the eating of

insects) supplements the diets of approximately two billion people and has always been a part of human diets.

With a world population of nine billion people expected by the end of this decade, the potential for climate-related destabilization of existing animal protein production paradigms, as well as the amount of water and other inputs required per pound of protein under those paradigms, insect protein presents an intriguing, potentially more sustainable alternative in food and feed production. [Certainly](#) it is being [marketed as such today](#).

Articles Intended as Food Are Food, Even If You've Never Tried It

Under the [Food, Drug, and Cosmetic \(FD&C\) Act](#), “food” includes feed and means “(1) articles used for food or drink for man or other animals ... and (3) articles used for components of any such article.” Given the statutory definition, FDA may not have to say or change anything in order to fully regulate insects intended for use as food. As early as 1993, the agency was doing just that in an [FDA Warning Letter concerning the product](#) “Sugar-Free Hotlix Flavored Candy with Genuine [W]orm.” That letter alleged that the product was *misbranded* for failing to (1) include an appropriate common or usual name for the product (“Artificial Tequila Flavored Candy with a Worm or with a Mealworm (if a mealworm is used)”) and (2) declare the insect ingredient by its common or usual name (“insect larva” or “mealworm larva”). The letter was silent on whether the product was adulterated due to the inclusion of the critter.

Existing Agency Advice, FSMA Regulation, and the Path Forward

In response to inquiries, in 2013 [FDA informally advised](#) an industry participant that any article intended as food – including insects – would be considered “food” and, therefore, must be clean and wholesome (*i.e.*, free from filth, pathogens, toxins); have been produced, packaged, stored, and transported under sanitary conditions; and be properly labeled. These all continue to be basic, existing

requirements under the Preventive Controls Rules for both Human Food and Animal Feed promulgated pursuant to the Food Safety Modernization Act (FSMA).

That informal advice went on to note that current Good Manufacturing Practices (cGMPs) would apply; insects raised for animal feed could not be diverted to human food; and the insects could not be “wildcrafted,” *i.e.*, collected in the wild. Finally, the informal advice noted that “[t]here is a growing body of scientific literature that people who are allergic to shrimp, clams, etc. may also be allergic to insects either as food or as adulterants [sic] in foods.” It is unclear whether the author of the 2013 informal advice meant to write “adulterants” or “ingredients.”

All of this can now be read through the implemented Preventive Controls Rules. Hazard analyses for known or reasonably foreseeable biological, chemical, and physical hazards must be considered. Preventive controls, including allergen controls, must be addressed as identified hazards. Sanitation and Supply Chain controls must be applied. The latter of these is likely the basis for the informal advice – given before the FSMA rules were finalized – that insects could not be “wildcrafted” and insects raised for animal feed could not be diverted to human food.

Product innovation for food and feed continues, even as it reaches back to prophets in the desert subsisting on [locust and wild honey](#).

The author has tried the chapulines (grasshopper tacos) at Chef José Andrés’ restaurant, Oyamel, in Washington, D.C. The entrée is not on the current menu. ●

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 MARKETS

Tomatoes

BY CHRIS CAMPBELL, ANALYST

As a water intensive crop, processing tomatoes are impacted by water shortages and drought more than other vegetable staples. With that, recent extreme weather could set the stage for price hikes on everything from pizza sauce to ketchup.

Acreage Report Shows Increase from 2020 Production

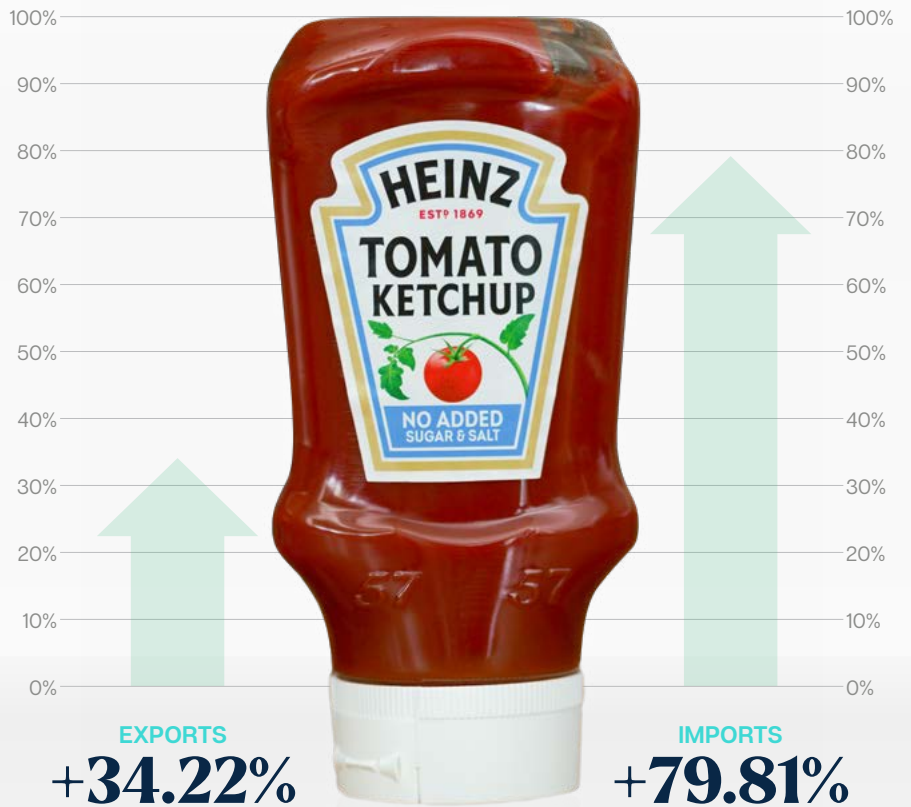
In May, California's tomato processors reported they had or will have had contracts for 11.6 million-tons of processing tomatoes for 2021. The figure was 4.1% lower than the January forecast but 2.5% above the final 2020 contracted production.

Additionally, growers are expecting to produce these tomatoes on less acreage. USDA noted contracted acreage was 231,000 acres, down 3,000 acres from the final contracted acreage for 2020.

However, these numbers are certainly subject to change: record-setting heat and a historic drought are causing water districts to turn off the faucet for water deliveries across California.

Surging Demand for Ketchup

(% VOLUME VS. JUNE 2020)



Effect of Drought, Supply Chain Issues

"Another year of dry weather during the winter and spring caused concern over water availability and resulted in a decrease in contracted acreage and tonnage. The early crop has been developing nicely, with no reports of disease or pest pressure. At this point in the season, yield is projected to be average, but expected high temperatures in the coming months could have a significant impact," read the USDA report in May.

A follow-up report is expected Aug. 30, which could showcase the extent of damage caused by the ongoing drought and heatwaves on the West Coast. Wells Fargo agricultural economist Dr. Michael Swanson spoke with *The Washington Post*, saying the issues could cause a price jump.

"If you're a producer or a canner and see these problems coming, why would you not raise prices now in anticipation?" he said, adding that consumers don't see the price tag for a lot of the processed tomatoes consumed away from home. "It's embedded in the menu board – but it is one more reason prices at Chipotle and Pizza Hut will go up."

Imports and Exports Both Up

Perhaps in a bid to offset U.S. crop uncertainty, imports of canned tomato products were up significantly in the first month of the marketing year when compared to June 2020. Overall, import value was up 20.5% to about 67.4 million-lbs. worth of canned tomato products, while import value jumped the same percentage to about \$30.1 million.

Ketchup imports were up drastically in the first month, with value up nearly 89.8% to about \$7.1 million worth of product. Additionally, value increased for tomato-based prep. for sauce NESOI (+62.5%) and tomato puree in containers larger than 1.4g (+42.3%).

Exports were also up on a value basis; the total reached \$52.3 million, 8.6% higher than the total exported in June 2020. However, the total volume of canned tomato products shipped out of the country fell 3.5% to about 119 million-lbs., which could signal American producers are hanging on to more product.

Volume decreases could also be the result of constraints plaguing the global shipping industry. ●



Tomato Product Exports

MARKETING YEAR JUNE 1-30, 2021

COMMODITY	QUANTITY		VALUE	
	Pounds (1000)	% Chg. Last Yr.	Dollars (\$1000)	% Chg. Last Yr.
Tomato Product Exports				
Canned Tomatoes, Whole/Pieces	13,669	-8%	\$5,139	-4%
Other Canned Tomatoes	6,792	73%	\$2,621	63%
Tomato Sauce	29,470	9%	\$13,935	11%
Tomato Paste	46,497	-24%	\$19,793	-5%
Ketchup	22,541	34%	\$10,818	36%
Grand Total	118,969	-4%	\$52,306	9%

Source: Bureau of Census

Tomato Product Imports

MARKETING YEAR JUNE 1-30, 2021

COMMODITY	QUANTITY		VALUE	
	Pounds (1000)	% Chg. Last Yr.	Dollars (\$1000)	% Chg. Last Yr.
Tomato Product Imports				
Containers 1.4 kg or more	2,347	746%	\$1,189	699%
1.4 kg Containers	2,110	-3%	\$1,510	50%
Other Canned Tomatoes	1,516	25%	\$800	81%
Sauce, Containers 1.4 kg or more	692	-37%	\$479	-26%
Sauce, Containers less than 1.4 kg	8,530	-4%	\$5,620	-7%
Tomato-Based Prep. For Sauce less than 1.4 kg	26,806	10%	\$9,627	2%
Tomato-Based Prep. For Sauce, NESOI	20,649	50%	\$7,112	62%
Ketchup	876	-80%	\$798	90%
Tomato Puree, Containers 1.4 kg or more	287	42%	\$124	30%
Tomato Puree, Containers less than 1.4 kg	439	-54%	\$234	-47%
Paste, Containers 1.4 kg or more	2,256	30%	\$1,668	51%
Paste, Containers less than 1.4 kg	942	22%	\$905	21%
Grand Total	67,450	-21%	\$30,066	21%

Source: Bureau of Census

Selected Commodities

PRELIMINARY BROILER PRICES FOR DELIVERY THE WEEK OF AUG. 6

(Source: USDA)

Cents Per Pound:	This Month	Last Month
Chicago	100-108	100-108
Cleveland	Too Few	Too Few
Detroit	Too Few	Too Few
Los Angeles	103-110	105-112
New York	99-110	99-109
Philadelphia	Too Few	Too Few
Pittsburgh	Too Few	Too Few
St. Louis	Too Few	Too Few
San Francisco	Too Few	Too Few

Prices are for ready-to-cook, Ice Grade A Broilers, (including branded), delivered in truckload quantities

BUTTER MARKET AUG. 11

(Source: USDA)

Cents Per Pound:	8/11/2021	7/14/2021	Chge.
Grade AA	1.6800	1.7100	-0.0300

EGG PRICES TO RETAILERS AUG. 11

(Source: USDA)

Cents per dozen:	Wk. Ending	Wk. Ending	Change in
	11-Aug	14-Jul	Prices
Extra Large-NY	111-115	108-112	3.00
Large-NY	109-113	106-110	3.00
Medium-NY	83-87	84-88	-1.00
Extra Large-MW	96-98	96-98	0.00
Large-MW	94-96	94-96	0.00
Medium-MW	69-71	71-73	-2.00
Extra Large-NC	127.42	123.4	4.02
Large-NC	121	119.59	1.41
Medium-NC	90.78	94.22	-3.44
Extra Large-CA	148	155	-7.00
Large-CA	139	147	-8.00
Medium-CA	110	108	2.00
Large-VA	N/A	N/A	N/A
Medium-VA	N/A	N/A	N/A
Small-VA	N/A	N/A	N/A

FROZEN EGG PRICES WEEK ENDING AUG. 6

(Source: USDA)

Carloads/Cents Per Pound:	This Month	Last Month
Whole, Light-Colored	76-79	76-79
White	65-67	67-69
Sugared Yolks	117-122	115-120
Salted Yolks	114-119	112-117

CHICKEN PART PRICES TO RETAILERS NEW YORK - AUG. 11

(Source: USDA)

Dollars Per Pound:	This Month	Last Month
Skinned Boneless	\$1.75-\$1.80	\$1.80-\$1.85
Ribs On	\$0.94-\$0.95	\$0.94-\$0.95
Legs	\$0.59-\$0.60	\$0.59-\$0.60
Leg Quarters	\$0.40-\$0.41	\$0.41-\$0.42
Wings	\$2.97-\$2.98	\$2.98-\$2.98

CHEDDAR CHEESE MARKET AUG. 11

(Source: USDA)

Cents Per Pound:	8/11/2021	Change	Last Month
Barrels	0.1410	-1.4540	1.5950
Blocks (40-lbs.)	1.7800	0.0425	1.7375

COMMODITIES PRICES

(Sources: The Wall Street Journal & Barchart.com)

	EOD 10-Aug	EOD 13-Jul	Price Last Year
Steers, Tex.-Okl. avg. cwt.	N/A	119.85	N/A
Feeder Steers, Okl. Cty., cwt.	170.63	168.13	153.13
Hogs, Iowa-S. Minn. live avg., cwt.	105.99	106.72	58.47
Hams, 17-20 lbs., Mid-US lb. fob	N/A	0.89	0.44
Milk, Nonfat dry, Chi.	125.50	124.00	94.00
Butter, Chi., Grade AA, lb.	1.67	1.71	1.52
Eggs, Chi., Large White, doz	0.92	0.92	0.62
Coffee, Brazilian, lb.	1.71	1.44	1.06
Flour, Hard Winter, KC, cwt.	20.55	18.65	13.30
Wheat, KC, Hard, bu	7.45	6.56	4.37
Corn, No. 2, Cent. IL, bu	6.12	6.44	2.99
Oats, No. 2 milling, Mnpls, bu	4.65	4.25	2.91
Cocoa, Ivory Cst., metric ton.	N/A	N/A	N/A
Soybeans, No.1 Yellow,Cent.IL, bu	13.89	14.53	8.54
Soybean Meal, IL, 48% ton	363.00	362.50	283.10
Soybean Oil, crd. Decatur, IL, lb.	0.67	0.75	0.31
Corn Oil, wet mill, Chgo. lb.	64.00	63.50	46.67
Lard, Chi., lb.	0.70	N/A	0.39
Aluminum, LME, metric ton.	2547.00	2478.00	1749.00
U.S. Regular Gasoline Prices, gal.	3.17	3.13	2.17
U.S. On-Highway Diesel Fuel, gal.	3.36	3.34	2.43

(Note: Gasoline and Diesel prices from U.S. Energy Information Administration)

FUTURES PRICES

(Source: Barchart.com)

As of July 13	Cash Price	August Futures	September Futures
Corn, bu.	6.12	5.49 (Sept.)	5.53 (Dec.)
Soybeans, bu.	13.89	13.48 (Sept.)	13.37 (Nov.)
Soybean Meal, ton	363.00	357.50 (Sept.)	356.00 (Oct.)
Soybean Oil, lb.	0.67	0.61 (Sept.)	0.61 (Oct.)
Wheat, bu.	7.45	7.27 (Sept.)	7.39 (Dec.)
Hogs, cwt. (carcass)	105.99	83.88 (ct.)	77.53 (Nov)
Cattle, cwt.	N/A	123.65	128.13 (Oct.)
Feeder Cattle, cwt.	170.63	159.33	163.05 (Sept.)
Orange Juice, lb.	N/A	1.38 (Sept.)	1.41 (Nov.)
Coffee, lb.	1.71	1.82 (Sept.)	18.5 (Dec.)
Cocoa, ton.	N/A	2,468 (Sept.)	2,536 (Dec.)

BROILER CHICKS PLACED LAST WEEK AND SIX WEEKS AGO

(Source: USDA)

Broilers placed six weeks ago come on the market next week

	Week Ended	% Chge.	Week Ended	% Chge.
1,000 Chicks:	8/21/2021	2020	7/17/2021	2020
Alabama	24,113	2.4%	24,038	-0.5%
Arkansas	21,840	-2.0%	23,057	11.4%
Delaware	5,430	33.0%	5,578	17.5%
Georgia	26,379	-0.4%	25,481	-1.4%
Kentucky	6,288	10.3%	5,963	-0.2%
Maryland	4,883	-21.2%	4,666	-14.3%
Mississippi	13,327	-3.4%	14,345	3.1%
Missouri	5,116	-26.2%	6,209	13.5%
N. Carolina	20,761	0.8%	20,664	-0.4%
Texas	14,578	0.5%	14,091	0.4%
Virginia	6,061	9.0%	5,289	-19.5%
Others	9,338	-5.3%	9,166	-0.9%
Total	158,114	-0.9%	158,547	1.1%

How High Can Prices Go: Top Consumer Foods

BY RICHARD BEI, CFA

As pandemic restrictions eased, pent-up consumer demand kept inflation elevated. In July, the overall consumer price index (CPI) rose 0.5%, a somewhat moderate gain relative to recent increases. Yet, over the past 12 months, price increases remained at the highest level since 2008.

There's reason to believe that the inflation story is far from over, particularly for the food industry. Recently several large food companies increased wages or began offering alternative forms of compensation to address the ongoing labor shortage. In combination with higher transportation and logistics costs, one can expect consumer food prices to remain elevated in the foreseeable future.

Fresh fruit prices on the rise

According to the August USDA National Retail Report, significant price increases were reported for blueberries (+29%), peaches (+26%), raspberries (+19%), and corn (+21%). At the same time, significant declines were reported for strawberries (-20%), asparagus (-20%), onions (-14%), and potatoes (-14%).

USDA's most recent 2021 forecast for the fresh fruit index is between +5% to +6%.

Meat prices sticker shock

The July CPI data showed that across all food categories, meat prices had the biggest gains over the last 12 months, ranging between +5% to +8%. According to USDA National Retail Report, a few subcategories saw incredible surges over the last 12 months: Filet Mignon (+111%), Sirloin Steak (+83%), Bone-In Ribeye Steak (+42%), Smoked Pork Chops (+54%), Backribs (+44%), Fresh Tenderloin (+26%), and Chicken Wings (+32%).

But sticker shock isn't stopping consumers from purchasing more meats. According to IRI's mid-year Meat Update report, first-quarter meat volume sales were up 7.9% and second-quarter volume sales increased 2.6% over 2019. The biggest growth in volume sales during first half of 2021 was bacon, with

Fruits and Vegetables

RETAIL PRICE CHANGE (%) VS AUGUST 2020



BLUEBERRIES
↑ 29%



PEACHES
↑ 26%



RASPBERRIES
↑ 19%



CORN
↑ 21%



STRAWBERRIES
↓ 29%



ASPARAGUS
↓ 26%



ONIONS
↓ 19%



POTATOES
↓ 21%

Meat

AUGUST 2021 RETAIL PRICE (WGT AVG) VS AUGUST 2020

PORK



SMOKED CHOPS
↑ \$5.78
\$3.76 (August 2020)

BEEF



FILET MIGNON
↑ \$20.12
\$9.53 (August 2020)

POULTRY



CHICKEN WINGS
↑ \$3.40
\$2.58 (August 2020)



FRESH TENDERLOIN
↑ \$4.54
\$3.59 (August 2020)



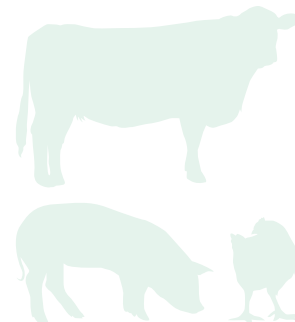
BONE-IN RIBEYE STEAK
↑ \$9.76
\$6.89 (August 2020)



BACKRIBS
↑ \$4.48
\$3.12 (August 2020)



SIRLOIN STEAK
↑ \$10.88
\$5.93 (August 2020)



Source: USDA National Retail Report

an additional 57 million pounds sold. Not far behind was chicken wings, with an additional 33 million pounds sold.

USDA's most recent 2021 meat index forecast calls for gains between +3% to +4%.

How high can prices go?

Most economists expect the overall inflation rate to be 4.2% by the end of this quarter, and range between 3%-4% next year.

The USDA projected the food at home index to rise between +2% to +3%, and food away from home index to increase between +3% and +4% (see table below).

Some in the food industry expect prices increases to go even higher.

"Is there somewhat more inflation out there? There is. Are we going to be pricing to deal with it? We certainly are."

– HUGH JOHNSTON, CHIEF FINANCIAL OFFICER OF PEPSICO

According to a Food Institute survey conducted in May, 52% of participants expected food prices to rise between 5%-15%, and 28% of participants expected increases >15%.

"Is there somewhat more inflation out there? There is. Are we going to be pricing to deal with it? We certainly are."
– Hugh Johnston, chief financial officer of PepsiCo told The New York Times. ●

CPI Forecasts

CONSUMER PRICE INDEX ITEM	20-YEAR HISTORICAL AVERAGE	FORECAST RANGE ² 2021
	PERCENT CHANGE	PERCENT CHANGE
ALL FOOD	2.4%	2.5% to 3.5%
FOOD AWAY FROM HOME	2.8%	3.0% to 4.0%
FOOD AT HOME	2.0%	2.0% to 3.0%
MEATS, POULTRY, AND FISH	2.9%	2.5% to 3.5% (+)
Meats	3.2%	3.0% to 4.0% (+)
Beef and veal	4.4%	3.0% to 4.0% (+)
Pork	2.2%	4.0% to 5.0% (+)
Other meats	2.2%	1.0 to 2.0
Poultry	2.1%	2.5 to 3.5 (+)
Fish and seafood	2.5%	2.0 to 3.0 (+)
EGGS	3.1%	2.0 to 3.0 (+)
DAIRY PRODUCTS	1.8%	0.5 to 1.5
FATS AND OILS	2.2%	2.5 to 3.5
FRUITS AND VEGETABLES	2.0%	2.0 to 3.0
Fresh fruits and vegetables	1.9%	2.5 to 3.5 (+)
Fresh fruits	1.4%	5.0 to 6.0 (+)
Fresh vegetables	2.5%	0.0 to 1.0
Processed fruits and vegetables	2.1%	1.5 to 2.5
SUGAR AND SWEETS	1.9%	1.5 to 2.5
CEREALS AND BAKERY PRODUCTS	2.1%	1.0 to 2.0
NONALCOHOLIC BEVERAGES	1.3%	2.0 to 3.0
OTHER FOODS	1.5%	2.0 to 3.0

¹Bureau of Labor Statistics estimated expenditure shares, May 2021. Food prices represent 13.9 percent of the total CPI.

²A negative sign indicates an adjustment downward and a plus sign indicates an adjustment upward.

Note: The most recent forecast was published on July 23, 2021. The next forecast will be published on August 25, 2021.

Source: U.S. Bureau of Labor Statistics Consumer Price Indexes (not seasonally adjusted) and forecasts by USDA, Economic Research Service.

Consumer Price Index Report

JULY 2021

CATEGORY	UNADJUSTED INDEX			UNADJUSTED % CHANGE	
	CURRENT MONTH	LAST MONTH	A YEAR AGO	PERCENT CHANGE	
	July 2021	June 2021	July 2020	Monthly % Change	YoY % Change
ALL ITEMS (CPI-U)	273.0	271.7	259.1	0.5%	5.4%
ALL FOOD	278.1	276.2	268.9	0.7%	3.4%
GASOLINE	275.7	269.0	194.4	2.5%	41.8%
ALL ITEMS LESS FOOD	272.2	271.0	257.6	0.4%	5.7%
ALL ITEMS LESS FOOD & ENERGY	279.1	278.2	267.7	0.3%	4.3%
FOOD AT HOME	259.0	257.4	252.6	0.6%	2.6%
Cereals & Cereal Products	236.2	234.9	234.7	0.6%	0.7%
Bakery Products ⁽⁴⁾	320.4	316.8	314.4	1.1%	1.9%
Beef & Veal	376.9	374.9	354.0	0.5%	6.5%
Pork	251.6	246.1	233.4	2.2%	7.8%
Poultry ⁽⁴⁾	260.7	255.9	247.5	1.9%	5.3%
Fish & Seafood	329.4	324.6	308.9	1.5%	6.6%
Dairy Products	231.2	230.2	227.1	0.5%	1.8%
Fresh Fruit & Vegetables	360.7	364.4	352.5	-1.0%	2.3%
Processed Fruits & Vegetables ⁽⁵⁾	167.1	166.7	164.2	0.2%	1.7%
Sugar & Sweets ⁽⁴⁾	233.4	232.9	225.0	0.2%	3.7%
Fats & Oils	240.9	236.7	231.6	1.8%	4.0%
Carbonated drinks	182.8	181.8	181.7	0.5%	0.6%
Alcoholic beverages	263.2	262.9	257.0	0.1%	2.4%
Coffee	196.2	198.6	195.2	-1.2%	0.5%
Other Foods	236.3	234.3	235.2	0.8%	0.5%
FOOD AWAY FROM HOME ⁽⁴⁾	308.0	305.6	294.6	0.8%	4.6%
Other Foods	189.9	188.7	182.0	0.6%	4.3%
Limited service meals	203.0	201.0	190.5	1.0%	6.6%

Source: U.S. Bureau of Labor Statistics Release: Consumer Price Index



Mergers & Acquisitions

Suja Life, a California-based cold-pressed beverage company, announced its acquisition by **Paine Schwartz Partners**. The news followed a record-breaking year for Suja in both revenue and profit. Financial terms of the transaction were not disclosed.

GrubMarket acquired **Pacific Farm Management**, a full-service farm management services company, making it one of the largest agricultural staffing and management services providers on the West Coast.

C&S Wholesale Grocers, the nation's largest grocery distributor, is buying **Piggly Wiggly Midwest**. With the deal, C&S will acquire 11 Piggly Wiggly corporate-run stores and 84 franchisees, along with 14 supermarkets under the Butera Market banner, reported *Supermarket News*.

Foodservice equipment manufacturer **Welbilt** will reportedly merge with **Ali Group** for \$3.5 billion. The all-cash deal is expected to close in early 2022, reported *Restaurant Business*.

Uber Technologies Inc.'s freight unit is buying technology-focused logistics services provider Transplace in a cash and stock transaction deal worth about \$2.25 billion that extends the ride-hailing giant's reach into the U.S. domestic shipping sector, reported *The Wall Street Journal*.

Alimentation Couche-Tard entered into a definitive agreement to acquire **Wilson's Gas Stops and Go! Stores**. The transaction is expected to close in the first half of the 2022 calendar year.

Square has agreed to acquire **Afterpay** for \$29 billion in an all-stock deal. Afterpay's technology allows users to pay for goods in four, interest-free installments while receiving the goods immediately, reported *The Wall Street Journal*.

High Bluff Capital Partners is acquiring **Church's Chicken**. The chain will join a growing roster of restaurant brands under High Bluff's REGO Restaurant Group platform, which includes Quiznos and Taco Del Mar, reported *Forbes*. ●



ACQUISITION SPOTLIGHT

PepsiCo announced plans to sell Tropicana, Naked, and other juice brands across North America to private equity firm PAI Partners for about \$3.3 billion as it seeks to bolster its balance sheet and focus on healthier snacks and zero-calorie drinks.

The U.S. drinks giant will retain a 39% non-controlling interest in a new holding company for the brand and has also granted PAI an irrevocable option to buy certain juice businesses in Europe, reported *Bloomberg* (Aug. 3).

PepsiCo will use the proceeds from the deal to strengthen its balance sheet and invest in the wider business, it said in a press release.

The juice businesses delivered about \$3 billion in net revenue in 2020 with operating profit margins that were below the company's overall operating margin in 2020. The transaction is expected to close in late 2021 or early 2022, subject to customary conditions.



Business Buzz

Jeff Bezos-backed food-tech firm **NotCo** said it raised \$235 million in its latest funding round. The plant-based food company, which is also backed by tennis star Roger Federer, is now valued at \$1.5 billion, and will use the proceeds for product and location growth as well as investments in its proprietary A.I. technology, reported *Reuters*.

Dole Plc will try to raise \$2.1 billion via its IPO, according to company officials speaking at its roadshow July 19. The company, the world's largest fresh produce company by size, plans to list 26 million ordinary shares at \$20 to \$23 per share, reported *Fast Company*.

Food delivery startup **Swiggy** announced it closed a \$1.25 billion funding round led by SoftBank Vision Fund 2 and Prosus, just days ahead of rival Zomato Ltd.'s listing, reported *Bloomberg*.

Nature's Fynd raised \$350 million in a Series C funding round and will use the proceeds for growth initiatives.

The Fresh Market is proceeding with an official IPO filing, marking the second time that the company will go public. The specialty grocer sees fresh food ordering and a smaller store format as key growth drivers, reported *Supermarket News*.

Nobell Foods recently raised \$75 million to make a "cheesier" plant-based cheese. The startup company says it has pioneered a new way to make dairy products from plants. The key lies in casein, a protein unique to milk, which Nobell now grows in soybeans, reported *Fast Company*.

Delivery startup **Jokr** recently raised \$170 million from investors to power growth. In the last four months, the company has built nearly 100 dark stores, and expects to double that number by the end of the year, reported *Reuters*.

GoPuff raised \$1 billion in new funding for hiring and technology enhancements and to expand across North America and Europe.

Miyoko's Creamery, a maker of imitation cheese and butter, raised \$52 million in a new funding round as investors flock to plant-based proteins, reported *Bloomberg*. ●



Foreign Deals

British supermarket group **Morrisons** has agreed to an improved takeover offer worth \$9.3 billion (6.7 billion pounds) in cash from a consortium led by Softbank-owned Fortress Investment Group, reported *Reuters*.

Finland-based **Mekitec Group**, a food quality control system manufacturer, acquired Mexican software maker **Kanan Smart Solutions**, formerly owned by Grupo Bimbo. ●



Latest Financial Reports

For the latest company sales and net income information, please click [here](#). ●

MEMBERS

In the Spotlight

**Twin City Foods**

Established in 1945, Twin City Foods is one of the largest processors and packagers of high quality, conventional and organic, frozen peas, corn, carrots, green beans and lima beans in the U.S. With 4 processing plants, and 6 cold storage facilities, positioned in strategic growing and distribution

locations of the Northwest and Midwest, Twin City Foods is able to react quickly to customer needs across the nation, and internationally as well.

→ To learn more about this Food Institute Member, please visit: twincityfoods.com.

**Lakeside Food Sales, Inc.**

Lakeside Food Sales, Inc. has been in business since 1986 and leads the market in representing suppliers from around the globe. Lakeside Food Sales specializes in buying and selling raw materials, food ingredients and finished goods with the end result of delivering the most cost effective and profit inducing prices to the buyer. Lakeside Food

Sales is also in the business of purchasing and selling closeout, overstock, buybacks and excess perishable and non-perishable items produced by reputable companies throughout the world.

→ To learn more about this Food Institute Member, please visit: lakesidefoods.com.

**KeyImpact Sales & Systems Inc.**

Formed in 2000, through the merger of Key Brokerage in NJ and Impact Sales in MD, KeyImpact has grown to become the leading foodservice sales and marketing agency in the US. KeyImpact represents manufacturers of food, as well as packaging and supplies, and provides sales and marketing services to distributors and operators across all segments of the foodservice trade channel. KeyImpact currently employs approximately 800

associates in 50 states with industry expertise in sales, marketing, culinary, K-12, military, college and university, contract feeding, c-stores, retail, deli, national and regional commercial chains, recreation and distribution, as well as extensive product and category expertise.

→ To learn more about this Food Institute Member, please visit: kisa.com or email: info@kisa.com.