



REPORT

APRIL 2021



FOOD AS MEDICINE:
WHY THE PHILOSOPHY IS AS
POPULAR AS EVER



GRASPING THE GUT
MICROBIOME

COMPANIES LEVERAGING
FOOD AS MEDICINE

PANDEMIC DRIVES
FOOD AS MEDICINE TREND

A MESSAGE FROM FOOD INSTITUTE CEO BRIAN CHOI

FOOD AS MEDICINE GAINING MOMENTUM

If anyone understands the concept of food as medicine, it's Momo Vuyisich.

I recently had a riveting conversation with Momo, the chief science officer at biotech startup Viome. He described a juncture during his mid-20s when he was riddled with rheumatoid arthritis, an autoimmune disease that causes painful inflammation in joints that, in severe cases, can result in deformity and immobility. For a while, Momo's condition progressively worsened, and his doctor's recommended treatments simply weren't working.

That left Momo on a quest to find a cure for his condition, which inspired the creation of Viome, a company leveraging the science behind gene expression to deliver personalized health insights and food recommendations to optimize health and prevent illness.

These days, Momo is pain-free and has become an evangelist for "healing oneself" through food.

The "food as medicine" concept has existed for centuries but has gained traction of late, especially as consumers put their health and well-being front and center amid the COVID-19 pandemic. The concept generally refers to the idea of using diet and nutrition to promote overall health and wellness.

While food as medicine might seem vague, and therefore difficult to wrap your head around, Junnie Lai sums it up rather succinctly with an analogy.

It's similar to your car; if you take good care of your car, it'll still look brand-new and beautiful, even after three years,"

explained Lai, principal with New Jersey-based Global Cuisine Consulting. "For our bodies, picking the right food and eating well, that's half the battle. Then, hopefully you don't have to get to the point where you need some heavy medication to help fight a disease."

Lai's beliefs are clearly shared by others around the globe. The immunity-boosting food products market is expected to grow to more than \$1 trillion by 2023. With that, The Food Institute is putting the concept of food as medicine under the microscope in this month's report, including:



- Research on the gut microbiome, which is unlocking the complex relationship between food and gut health
- A look at the growing list of companies leveraging the concept of food as medicine, like Beyond Meat, Kind, and Kashi
- How healthcare companies are supporting food as medicine to reduce medical expenses like hospital visits

"Let food be thy medicine and medicine be thy food" are words of wisdom attributed to Hippocrates, and these words are nearly as true today as when the renowned Greek physician said them, circa 400 B.C. And, for those in the food industry, tapping into the food as medicine trend could be the perfect prescription for raising the bottom line in 2021.



CONTENTS

04.2021 | 94TH YEAR | NO. 04

**6****GRASPING THE GUT MICROBIOME**

Researchers have made significant headway unlocking the complex relationship between food and gut health

7**COMPANIES LEVERAGING FOOD AS MEDICINE**

With the pandemic fueling demand for immunity-boosting foods, a number of companies are leveraging the concept

8**PANDEMIC DRIVES FOOD AS MEDICINE**

Both private and public entities are on their way to leveraging the food as medicine concept

11**LEGAL**

If your food promotes health, let consumers know

13**MARKETS**

A closer look at the avocado market ahead of Cinco de Mayo

15**TOP MICROBIOME COMPANIES**

Large pharmaceutical and biotech companies have formed partnerships worth hundreds of millions of dollars with microbiome firms

16**MERGERS AND ACQUISITIONS**

A review of Squarespace's agreement to purchase Tock and other deals



FOOD AS MEDICINE: WHAT'S OLD IS NEW AGAIN

BY KELLY BEATON

Barry Tonkinson is paid to play with his food.

As the director of culinary research and development at New York's Institute of Culinary Education, Tonkinson's workdays include studying and experimenting with food in an advanced technology lab to keep tabs on what's new in the food industry.

**FOOD HAS TEXTURE, IT HAS
FLAVOR, IT HAS SMELL.**

- CHEF JUNNIE LAI

These days, the former London-area chef is focusing on the latest fermentation methods for foods like inoculated koji rice that's popular in countries like Japan and Korea.

"People are eating more healthy, trying to get away from greasy, or sugar-filled [food] with things like fermentation, which is good for health," Tonkinson told The Food Institute.

"We're realizing now that health is super important, and that we need to have balanced diets. We also need to make sure that our body is filled with healthy bacteria."

Strategies like fermentation are both time-tested and as popular as ever, as the food industry increasingly embraces food as medicine—a centuries-old philosophy rooted in the belief that certain foods can treat, or prevent disease.

Against this backdrop, the immunity-boosting food products market is expected to grow at a CAGR of 6.2% to more than \$1 trillion by 2023, according to the Business Research Company.

Plant-based protein, tea with bay leaves, antioxidant-rich fruits like blueberries, and anti-inflammatory ingredients like ginger and turmeric, are just a few items that today's consumers are seeking out as part of the food as medicine philosophy.

"If we eat well then we don't really have to take vitamins," said chef Junnie Lai, principal with New Jersey-based Global Cuisine Consulting. "Eating well is more delicious than taking pills, right?"

Right.

Brian Choi

MANAGING PARTNER/CEO
BRIAN.CHOI@FOODINSTITUTE.COM
EXT. 700

Cathie Sloan

VICE PRESIDENT/CFO
CATHIE.SLOAN@FOODINSTITUTE.COM
EXT. 711

Richard Bei

COO/HEAD OF DATA SCIENCE
RICHARD.BEI@FOODINSTITUTE.COM
EXT. 701

Chris Campbell

ASSOCIATE CONTENT MANAGER
CHRIS.CAMPBELL@FOODINSTITUTE.COM
EXT. 702

Victoria Campisi

BUSINESS WRITER
VICTORIA.CAMPISI@FOODINSTITUTE.COM
EXT. 705

Rich Alterman

WRITER/EDITOR
RICH.ALTERMAN@FOODINSTITUTE.COM
EXT. 704

Kelly Beaton

WRITER/ DIGITAL CONTENT STRATEGIST
KELLY.BEATON@FOODINSTITUTE.COM
EXT. 703

Paola Garcia

BUSINESS DEVELOPMENT/SALES DIRECTOR
PAOLA.GARCIA@FOODINSTITUTE.COM
EXT. 706

Grace Garwood

BUSINESS WRITER
GRACE.GARWOOD@FOODINSTITUTE.COM
EXT. 709

Susan Choi

DIRECTOR OF DIGITAL CONTENT
SUSAN.CHOI@FOODINSTITUTE.COM



The Food Institute LLC

330 Changebridge Road, Suite 101
Pine Brook, NJ 07058

Phone

(1-855) 791-5570

Fax

(201) 791-5222

Email

food1@foodinstitute.com

Website

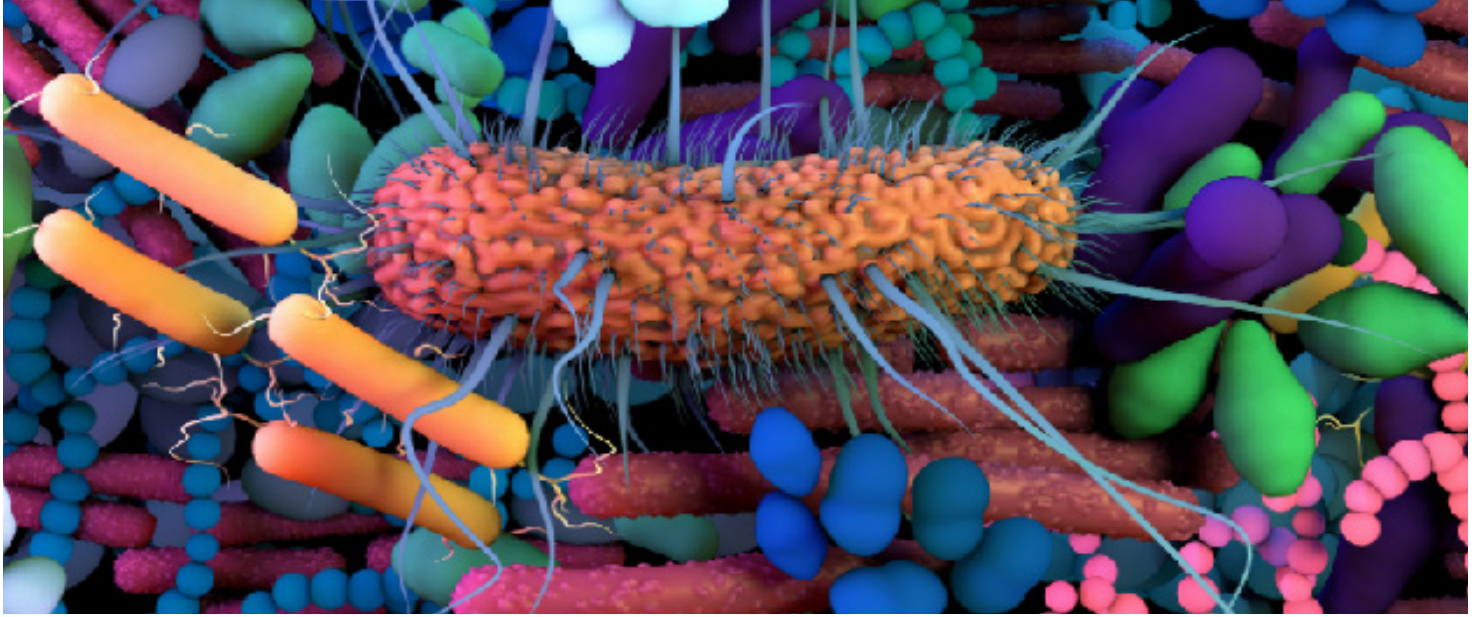
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to paola.garcia@foodinstitute.com.



GRASPING THE GUT MICROBIOME

BY RICH ALTERMAN

Amid the pandemic, consumers have been trying foods that help them build immunity, prevent inflammation, aid digestive health, and relieve stress. With these goals in mind, many are increasingly looking inward – literally— to discover connections between gut health and diet.

And it's not just consumers looking to make these connections. Aside from food companies already promoting the benefits of gut health, start-up microbiome firms have made significant headway unlocking the complex relationship between food and gut health.

Seattle-based Viome, for example, identifies and quantifies every strain and species in a person's gut and determines what nutrients and toxins are produced. Results are then run through an advanced artificial intelligence engine to arrive at personalized food recommendations designed to increase microbial species.

The “microbiome” refers to the collection of microorganisms present in a person's intestines. These microorganisms include bacteria, fungi, and archaea. Having a diverse range of “good” gut microbiome is beneficial to overall health. Microbiome can, however, become less diverse and less beneficial for many reasons, including birthing and infant feed-

ing method, stress, environment, diet, medications, age, and diseases.

Today, researchers are taking a closer look at dysbiosis - the alteration in microbial community that results in decreased diversity and numbers of commensal bacteria – and how the consumption of certain food affects this dynamic. And with studies suggesting relationships between gut dysbiosis and chronic health conditions such as inflammatory bowel disease, metabolic syndrome, cardiovascular disease, obesity, and cancer, food as medicine is a growing area of interest.

THE SCIENCE BEHIND GUT MICROBIOME

The [gut microbiota](#) plays an important role in nutrient and mineral absorption, synthesis of enzymes, vitamins and amino acids, and production of short-chain fatty acids. The fermentation byproducts acetate, propionate, and butyrate are important for gut health and provide energy for epithelial cells, enhance epithelial barrier integrity, and provide immunomodulation and protection against pathogens.

Current investigations are exploring resident bacterial gene function and the potential corresponding role in human health and metabolism. Additionally, studies of whether nonpathogenic bacterial

strains can stimulate immune responses to pathogenic causing diseases is ongoing (*ScienceDirect*, 2019).

Of particular note in gut microbiome research is that it isn't the food a person eats, but how their specific gut microbiome processes that food, which determines what the most optimal foods for an individual are (*Forbes*, 2019). In a recent Viome study, individuals consuming similar foods showed large differences in glycemic response.

For some, when they consumed what they expected was a low glycemic food like a banana - their body responded like they had just eaten a sugary dessert item, while others showed no effects at all. This study highlights how the gut microbiome may be influencing changes in people's glycemic response and just how complex the gut-diet relationship is.

Another, more recent study led by University of California, Irvine researchers indicates that a short-term intervention in daily fiber consumption can significantly alter the gut microbiome and nutrient intake and directly impact human health (*MedicalXpress*, March 26).

As research continues, and the food and healthcare industries converge, market observers will be watching closely to see how the gut health-diet dynamic evolves. ●



COMPANIES LEVERAGING FOOD AS MEDICINE

BY KELLY BEATON

In Z'ev Rosenberg's mind, food as medicine is hardly a passing fad. The well-respected practitioner of Chinese herbal medicine has been a firm believer in the concept since the early 1970s.

"In Japan, they say food is medicine," said Rosenberg, a Californian whom one colleague called the most relevant current practitioner of food as medicine. "An

ecological, regional, seasonal approach to diet is necessary to maintain one's health."

Rosenberg, who has studied macrobiotics for decades, notes that many Americans seem to be embracing the concept of healthier eating. That's why he feels the practice of food as medicine is bound to grow in the years ahead — "It's inevitable," he said. "Regular

medicine is getting more and more expensive, and the price gets steeper for neglecting self-care."

Statistics appear to back Rosenberg's belief in the potential for food as medicine. For starters, the global immunity-boosting food products market is expected to grow at a CAGR of 7.6% to nearly \$1.22 billion by 2025, according to The Business Research Company.

In fact, a number of categories have leveraged the concept of food as medicine during the COVID-19 pandemic. Plant-based food sales, for example, surged during the pandemic as consumers sought healthier dishes. According to Nielsen, meat alternatives saw an increase of 129% during the first seven months of the pandemic alone, with companies like Impossible Foods leading the way.

But consumers are embracing more than just soy-based hamburgers these days. Among the healthier-for-you food items consumers are flocking to are miso soup, legumes, whole-grain breads, heirloom grains like spelt, pickled vegetables, and produce like blueberries and celery.

COVID-19 survivors are investing in their health, too. According to NielsenIQ, 79.4% of U.S. households that were still dealing with coronavirus symptoms in December 2020 maintained or increased their consumption of healthy foods (see infographic).

Brands currently gaining traction in the healthy food and beverage space include:

- Kind
- Bob's Red Mill
- Jeni's Splendid Ice Creams
- Kashi
- Beyond Meat
- Food for Life Baking Co.
- Perfect Snacks
- Halo Top
- Spindrift
- Eden Foods
- Sigg's
- Mindright

Large, well-established companies are also investing in better-for-you food. Nestle, the world's largest food and drink company, established a \$500 million budget through 2021 to research medical foods, according to just-food.com. Mondelez International recently invested in health food brands like New York-based Uplift Food.

With the pandemic increasing consumers' awareness of the diet-wellness relationship, corporate investments in the better-for-you space are likely to continue for the foreseeable future.

And while some Americans have vegged out and put on pounds during the pandemic, many, Rosenberg notes, have intensified their habit of eating "simpler, healthy foods." ●

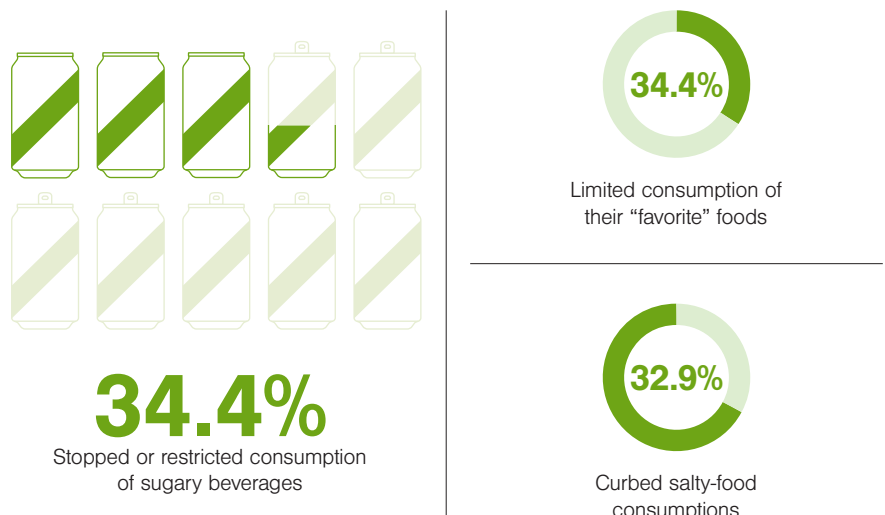
"TAKE TWO OF THESE AND CALL ME IN THE MORNING"

SOME OF THE BEST FORMS OF FOOD AS MEDICINE, ACCORDING TO Z'EV ROSENBERG, A WIDELY RESPECTED AND LONGTIME PRACTITIONER OF CHINESE HERBAL MEDICINE.



IMPACT OF COVID-19 ON CONSUMER BUYING

ACCORDING TO NIELSEN IQ, ROUGHLY ONE-THIRD OF U.S. HOUSEHOLDS THAT WERE DEALING WITH COVID-19 SYMPTOMS IN DECEMBER 2020 WERE LIMITING THEIR CONSUMPTION OF CERTAIN ITEMS. CONSIDER:



*Source: NielsenIQ February 2021 analysis



PANDEMIC DRIVES 'FOOD AS MEDICINE' TREND

BY CHRIS CAMPBELL

With one out of every five deaths across the globe attributable to a suboptimal diet, it comes as no surprise that some physicians are trialing “food as medicine” programs featuring medically tailored meals (that is, meals tailored to patients’ needs by registered dietitian nutritionists, or MTMs) and produce prescriptions. Further, as some food companies and nonprofits are successfully implementing food as medicine, hospital systems and insurance companies are also looking to leverage the concept.

INCREASING ADOPTION AND INTEREST IN HEALTHCARE FIELD

Project Well, a food as medicine technology platform, works to provide personalized nutrition and behavior change support to health plan members. The or-

ganization focuses on those with diet-related chronic conditions, with a dual mission of improving healthcare outcomes and reducing healthcare costs, according to director of strategy Kendall Singleton.

“Project Well sees food as a bridge between the upstream social determinants of health and the downstream treatments where our healthcare system largely sits. We believe food is an entryway to drawing healthcare further upstream, enabling it to address root causes of health outcomes and focus on health, prevention, and wellness,” he said.

Singleton believes there is a growing acknowledgement that the current healthcare model is unsustainable and bogged down treating preventable chronic conditions, and the concept of food as medicine is stirring new partnerships and initiatives.

“We see representatives across different sectors – agriculture, healthcare, public health, nutrition assistance programs, foodservice – coming together and breaking down silos in increasingly creative and exciting ways. In particular, we see health plans growing more and more interested in designing meaningful food-related benefits for their members, as a way to increase engagement, reduce healthcare costs, and drive better health outcomes.”

A PUSH FOR FEDERAL MTM FUNDING

The private sector isn’t the only group looking to expand access to MTMs as nonprofits lobby federal and state governments to investigate their utility.

Recently The Food Is Medicine Coalition (FIMC) sent a letter to new Health and Human Services Secretary Xavier

Becerra touting the benefits of MTMs and pushing for more federal funding.

FIMC noted that the use of MTMs tend to result in better health outcomes and lower healthcare costs, citing research that these programs could reduce inpatient hospital admissions by as much as 52%, and admission to skilled nursing facilities by 72%.

FIMC also said the use of MTMs resulted in a 16% net decrease in healthcare costs for over 800 individuals receiving the service over a 5-year period.

“The time has come to acknowledge the efficacy of administering MTMs on a broader scale and to implement policies that make that provision a reality,” said Karen Pearl, chair at FIMC.

INCREASED FOOD INSECURITY DURING THE PANDEMIC

FIMC notes that the coronavirus only heightened the need for MTMs in the U.S., with food insecurity on the rise and many people consuming less-than-fresh food items in the early days of the pandemic. This idea was echoed in a study led by Sarah Downer published by The BMJ.

“Healthcare systems that integrate food is medicine interventions will enable more resilient systemic responses to such crises. An integrated system will support an infrastructure of food is medicine providers and access pathways that can be used to immediately meet increased demand for healthy food support,” the authors wrote.

The authors noted the pandemic had exacerbated an already-dire global epidemic of obesity, and that both government and private health insurers in the U.S. were adopting food and nutrition interventions “in the hope of a return on their investment” due to reductions in overall healthcare cost claims.

Project Well’s Singleton noted the pandemic served as an educational opportunity to highlight the connection between food and chronic conditions.

“COVID-19 has highlighted the ways in which chronic conditions can exacerbate other health issues. Obesity, type 2 diabetes and high blood pressure have all been associated with more adverse health outcomes for people infected with COVID,” he said. ●

FAQs:

Q: How effective are food as medicine programs?

A: THESE PROGRAMS DRIVE IMPROVED HEALTH OUTCOMES AND LOWER HEALTHCARE COSTS, WITH A FOOD IS MEDICINE COALITION STUDY FINDING INPATIENT HOSPITAL AND SKILLED NURSING FACILITY ADMISSIONS COULD BE REDUCED BY AS MUCH AS 52% AND 72%, RESPECTIVELY.

Q: Who are the stakeholders in the medically tailored meals segment?

A: DIETITIANS, NONPROFITS, AGRICULTURAL PRODUCERS, FOOD MANUFACTURERS, FOODSERVICE CHAINS, PUBLIC HEALTH DEPARTMENTS, FEDERAL AGENCIES, INSURERS, BIOTECH COMPANIES, AND HEALTHCARE PROVIDERS ARE EXPLORING THE MEDICAL AND COST BENEFITS OF MEDICALLY TAILORED MEALS.





IF YOUR FOOD PROMOTES HEALTH, LET CONSUMERS KNOW

BY MICHAEL O'FLAHERTY
OFW LAW

The role of certain foods and their nutrients/constituents in promoting health has been recognized for centuries. Nonetheless, prior to 1990, these benefits could be conveyed to consumers in food labeling only by use of “structure/function” (S/F) claims (see 21 U.S.C. § 321(g)(1)(C)) – for example, promoting the health benefit of milk by claiming “calcium helps build strong bones.” This promotional inability, however, has since been corrected by legislative and judicial actions:

1. The [Nutrition Labeling and Education Act](#) (NLEA) of 1990 amended the Federal Food, Drug, and Cosmetic Act (FD&C Act) to authorize FDA approval of labeling use of health claims supported by “significant scientific agreement” (SSA).

2. The [Food and Drug Administration Modernization Act](#) (FDAMA) of 1997 permitted FDA to approve food labeling use of health claims based on an “authoritative statement.”

3. In [Pearson v. Shalala](#), a lawsuit decided in 1999, “qualified health claims” (QHC) were judicially authorized to be used in food labeling, provided that the health claim was qualified to inform consumers about the level of scientific support.

Health claims in food labeling are claims that have been reviewed by FDA and are allowed on food products to show that a substance (i.e., food or food component) may reduce the risk of a disease or a health-related condition. Here’s a bit more about each of these types of health claims and how to get FDA permission to use them on your food labels.

A. NLEA SSA HEALTH CLAIMS

To be approved by FDA as an authorized health claim, there must be SSA among qualified experts that the claim about the substance/disease relationship is supported by the totality of publicly available scientific evidence. This evidence is brought to FDA’s attention through submission of a health claim petition. See 21 C.F.R. § [101.70](#).

While the original petition must be submitted to FDA in paper form, additional copies may be submitted electronically. FDA has published Guidance for Industry: Evidence-Based Review System for the Scientific Evaluation of Health Claims (Jan. 2009) to guide industry on how petitions will be assessed.

To date, FDA has promulgated 12 regulations authorizing a variety of SSA health claims. See 21 C.F.R. Part 101, [Subpart E](#); see also [Questions and Answers on Health Claims in Food Label-](#)

[ing](#) (content current as of 12/13/2017). An example of an authorized SSA health claim is:

Diets low in saturated fat and cholesterol that include 3 grams of soluble fiber per day from whole oats may reduce the risk of heart disease. One serving of Pilgrim Oats provides 0.75 grams of this soluble fiber.

21 C.F.R. § [101.81](#). The authorizing regulation sets forth the rationale, as well as the eligibility and expression requirements, for the SSA health claim.

B. FDAMA AUTHORITATIVE STATEMENT HEALTH CLAIMS

FDAMA permits claims based on current, published authoritative statements from “a scientific body of the United States with official responsibility for public health protection or research directly related to human nutrition...or the National Academy of Sciences (NAS) or any of its subdivisions.” The National Institutes of Health (NIH) and the Centers for Disease Control and Prevention (CDC) are federal agencies also specifically identified as scientific bodies under FDAMA. FDA believes that other federal agencies may also qualify as appropriate sources for authoritative statements, including: the Surgeon General within Department

of Health and Human Services; and the Food and Nutrition Service, the Food Safety and Inspection Service, and the Agricultural Research Service within the Department of Agriculture.

FDAMA provides that an authoritative statement: (1) is “about the relationship between a nutrient and a disease or health-related condition”; (2) is “published by the scientific body”; (3) is “currently in effect”; and (4) “shall not include a statement of an employee of the scientific body made in the individual capacity of the employee.” Also, FDA thinks authoritative statements also should: (5) reflect a consensus within the identified scientific body if published by a subdivision of one of the Federal scientific bodies, and (6) be based on a deliberative review by the scientific body of the scientific evidence.

FDAMA requires that a notification of the health claim be submitted to FDA at least 120 days before the first introduction into interstate commerce of the food with a label bearing the claim. FDA advises that the notification is to include: (a) the exact words used in the claim; (b) a concise description of the basis upon which the notifier relied for determining that the requirements for an authoritative statement were satisfied; (c) a copy of the authoritative statement relied upon;

and (d) a balanced representation of the scientific literature relating to the relationship between the substance and a disease or health-related condition to which the health claim refers. An example of a FDAMA health claim is:

Diets rich in whole grain foods and other plant foods, and low in total fat, saturated fat, and cholesterol may help reduce the risk of heart disease.

FDA believes that “authoritative statement” health claims must parallel SSA health claims in terms of scientific support.

C. PEARSON QHC

In the Pearson case, the federal D.C. Circuit Court decided that it is unconstitutional, under the First Amendment’s protection of free speech, for FDA to permit only SSA-type health claims to appear in food labeling. This gave rise to “qualified health claims” (QHC), which are supported by credible scientific evidence, but do not meet the more rigorous SSA standard. To ensure that these claims are not misleading, they must be accompanied by a disclaimer or other qualifying language to accurately communicate to consumers the level of scientific evidence supporting the health claim.

For example:

Consuming EPA and DHA combined may help lower blood pressure in the general population and reduce the risk of hypertension. However, FDA has concluded that the evidence is inconsistent and inconclusive. One serving of Exemplar Salmon provides 0.9 gram of EPA and DHA.

Food manufacturers may petition FDA to consider exercising enforcement discretion for the use of a QHC. The FDA does not “approve” QHC petitions; rather, for a QHC petition with credible scientific evidence, the FDA issues a Letter of Enforcement Discretion (see [example](#)), which includes specific claim language that reflects the level of supporting scientific evidence and details of all enforcement discretion factors under which the FDA will not object to the use of the QHC. The process does not involve rulemaking. See [Guidance for Industry: FDA’s Implementation of Qualified Health Claims](#) (May 2006).

* * * * *

If your company markets a food with health benefits, consider assessing and promoting it with one of these three types of health claims. ●

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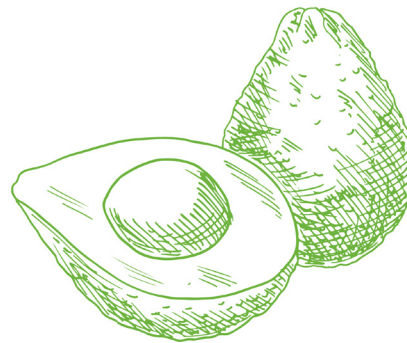
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AVOCADOS

CHRIS CAMPBELL, ANALYST

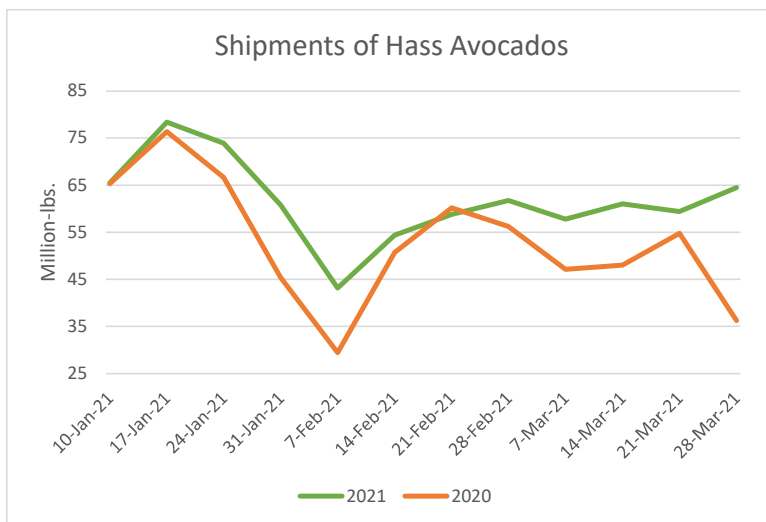
Avocado shipments are ahead of year-ago figures in the lead-up to Cinco de Mayo and the California Avocado Commission notes that Americans will likely consume around 81 million avocados for the holiday.



SHIPMENTS

Excluding the week ending Feb. 21, weekly Hass avocado shipments outpaced the prior year every week of 2021 through March 28.

- Nearly 78.4 million-lbs. of product were shipped the week ending Jan. 17, representing the highest total of the year thus far.
- Shipments have been relatively steady between Feb. 14 and March 28, ranging between a low of 54.4 million-lbs. on Feb. 14 and a high of 64.5 million-lbs. on March 28.
- The Hass Avocado Board projects shipments of 54.9 million-lbs. the week ending May 2 ahead of the Cinco de Mayo holiday.



Source: Hass Avocado Board

PRICES

As of April 6, Mexican imports were priced below their Southern California counterparts.

- The price range for avocados in the 32-40s sizes was \$42.25 to \$44.25 for Hass avocados in 2-layer cartons sourced from Mexico and traveling through Texas, compared to the \$48.25 to \$50.25 range reported for 32-48s sourced from Southern California.
- Similar price divides were seen among most sizes, with 70s nearly three dollars higher than U.S.-sourced product.
- However, 84s were priced between \$19.25 and \$20.25 for Mexican product, compared to a reported price of \$20.25 for U.S.-sourced 84s.

Avocado Price Snapshot

As of April 6

Source	Size	Price Range
Mexico via Texas	32-40s	\$42.25-\$44.25
	48s	\$44.25-\$46.25
	60s	\$36.25-\$38.25
	70s	\$24.25-\$26.25
	84s	\$19.25-\$20.25
Southern California	32-48s	\$48.25-\$50.25
	60s	\$38.25-\$40.25
	70s	\$27.25-\$28.25
	84s	\$20.25

Source: USDA

IMPORTS

Amid increasing import volume, prices for imported Hass avocados fell in the Jan. 1-Feb. 28 period when compared to 2020.

- The U.S. imported about 475.9 million-lbs. of avocados in the first two months of 2021, up 7% when compared to the prior year, but value dropped 20% to about \$386.1 million.
- Mexico accounted for the vast majority of U.S. imports, and increased its shipments 15% year-over-year.
- Colombia and the Dominican Republic have shipped significantly less to the U.S. thus far in 2021, with volumes down 89% and 91%, respectively. ●

Imports of Hass Avocados

Jan. 1-Feb. 28, 2021

		%Chng		%Chng
	1,000-lbs.	Last Yr	\$1,000	Last Yr
Avocados, Hass	475,962	7%	\$386,056	-20%
Mexico	475,808	15%	\$385,926	-19%
Colombia	78	-89%	\$65	-90%
Dominican Republic	76	-91%	\$65	-92%

Source: U.S. Bureau of Census

SELECTED COMMODITIES

PRELIMINARY BROILER PRICES FOR DELIVERY THE WEEK OF APRIL 9

(Source: USDA)

Cents Per Pound:	This Week	This Week
Chicago	92-103	86-95
Cleveland	Too Few	Too Few
Detroit	Too Few	Too Few
Los Angeles	95-104	90-96
New York	93-106	85-99
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 APRIL 14

(Source: USDA)

Cents Per Pound:	4/14/2021	4/7/2021	Chge.
Grade AA	1.8775	1.8150	0.0625

EGG PRICES TO RETAILERS APRIL 7

(Source: USDA)

Cents per dozen:	Wk. Ending	Wk. Ending	Changes
	14-Apr	7-Apr	Prices
Extra Large-NY	102-106	105-109	-3.00
Large-NY	100-104	103-107	-3.00
Medium-NY	89-93	89-93	0.00
Extra Large-MW	91-93	106-108	-15.00
Large-MW	89-91	104-106	-15.00
Medium-MW	78-80	81-83	-3.00
Extra Large-NC	125.67	137.43	-11.76
Large-NC	122.22	133.98	-11.76
Medium-NC	96.18	96.18	0.00
Extra Large-CA	152	169	-17.00
Large-CA	147	163	-16.00
Medium-CA	131	134	-3.00
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 APRIL 9

(Source: USDA)

Carloads/Cents Per Pound:	This Week	Last Week
Whole, Light-Colored	91-94	92-95
White	75-77	75-77
Sugared Yolks	110-115	110-115
Salted Yolks	107-113	107-113

CHICKEN PART PRICES TO RETAILERS NEW YORK - APRIL 14

(Source: USDA)

Dollars Per Pound:	This Week	Last Report
Skinned Boneless	\$1.65-\$1.70	\$1.55-\$1.60
Ribs On	\$1.04-\$1.05	\$0.98-\$0.99
Legs	\$0.52-\$0.53	\$0.52-\$0.53
Leg Quarters	\$0.38-\$0.39	\$0.38-\$0.39
Wings	\$2.80-\$2.81	\$2.80-\$2.81

CHEDDAR CHEESE MARKET APRIL 14

(Source: USDA)

Cents Per Pound:	4/14/2021	Change	Last Week
Barrels	1.6800	0.1000	1.5800
Blocks (40-lbs.)	1.7600	-0.0400	1.8000

COMMODITIES PRICES

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

	Week Ended	Week Ended	Price
	14-Apr	7-Apr	Last Year
Steers, Tex.-Okla. avg. cwt.	N/A	N/A	N/A
Feeder Steers, Okla. Cty., cwt.	163.13	163.00	140.94
Hogs, Iowa-S. Minn. live avg., cwt.	97.82	97.33	47.45
Hams, 17-20 lbs., Mid-US lb. fob	0.82	N/A	N/A
Milk, Nonfat dry, Chi.	120.50	118.25	85.00
Butter, Chi., Grade AA, lb.	1.90	1.83	1.15
Eggs, Chi., Large White, doz	0.87	1.02	2.11
Coffee, Brazilian, lb.	1.20	1.15	1.16
Flour, Hard Winter, KC, cwt.	16.30	15.35	14.65
Wheat, KC, Hard, bu	6.15	5.86	4.94
Corn, No. 2, Cent. IL, bu	5.76	5.50	3.12
Oats, No. 2 milling, Mnpls, bu	3.90	3.88	3.12
Cocoa, Ivory Cst., metric ton.	N/A	N/A	N/A
Soybeans, No.1 Yellow, Cent. IL, bu	13.89	14.13	8.36
Soybean Meal, IL, 48% ton	396.00	398.70	289.00
Soybean Oil, crd. Decatur, IL, lb.	0.58	0.55	0.26
Corn Oil, wet mill, Chgo. lb.	56.50	57.00	46.25
Lard, Chi., lb.	N/A	N/A	0.32
Aluminum, LME, metric ton.	2254.00	N/A	1456.00
U.S. Regular Gasoline Prices, gal.	2.85	2.86	2.85
U.S. On-Highway Diesel Fuel, gal.	3.13	3.14	3.16

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

FUTURES PRICES

(Source: Barchart.com)

As of April 14	Cash	April	May
	Price	Futures	Futures
Corn, bu.	5.76	5.80 (May.)	5.66 (Jul.)
Soybeans, bu.	13.89	13.89 (May.)	13.85 (Jul.)
Soybean Meal, ton	396.00	395.0 (May.)	400.0 (Jul.)
Soybean Oil, lb.	0.58	0.53 (May.)	0.51 (Jul.)
Wheat, bu.	6.15	6.29 (May.)	6.33 (Jul.)
Hogs, cwt. (carcass)	97.82	104.93 (May.)	106.18un.)
Cattle, cwt.	N/A	1.00	124.63 (Jun.)
Feeder Cattle, cwt.	163.13	142.45 (Apr.)	147.33 (May.)
Orange Juice, lb.	N/A	1.10 (May.)	1.13 (Jul.)
Coffee, lb.	1.20	1.30 (May.)	1.32 (Jul.)
Cocoa, ton.	N/A	2408.0 (May.)	2441.0 (Jul.)

BROILER CHICKS PLACED LAST WEEK AND SIX WEEKS AGO

(Source: USDA)

Broilers placed six weeks ago come on the market next week

	Week	%	Week	%
	Ended	Chge.	Ended	Chge.
1,000 Chicks:	4/10/2021	2021	3/6/2021	2020
Alabama	24,153	1.7%	23,937	-2.3%
Arkansas	20,079	-9.5%	21,876	-2.3%
Delaware	4,758	-8.6%	3,958	-29.0%
Georgia	25,854	0.9%	26,892	-2.7%
Kentucky	5,973	0.0%	5,365	-16.6%
Maryland	5,385	-4.6%	6,207	32.5%
Mississippi	13,966	-6.2%	14,387	-4.9%
Missouri	6,213	7.6%	5,665	1.2%
N. Carolina	20,772	2.0%	19,870	0.1%
Texas	14,034	0.9%	14,959	5.1%
Virginia	6,511	15.3%	5,117	-21.4%
Others	9,224	4.3%	8,120	-5.0%
Total	156,922	-0.6%	156,353	-2.9%



TOP MICROBIOME COMPANIES

BY RICHARD BEI, CFA

Large pharmaceutical and biotech companies have formed partnerships worth hundreds of millions of dollars with microbiome firms over the past few years. A few of these startups have gone public, while others may be waiting to be acquired. Here are the top names in the space.

Top Microbiome Companies

(funding status as of March 31, 2021)

1. [Ginkgo Bioworks](#)

Funding: \$797M

Founded in 2008 by MIT scientists, Ginkgo Bioworks specializes in using genetic engineering to produce bacteria with industrial applications.

2. [Zymergen](#)

Funding: \$874M

Founded in 2013, Zymergen is a biotechnology company that specializes in machine learning, big data, and artificial intelligence.

3. [Vedanta Biosciences](#)

Funding: \$244M

Founded in 2010, Vedanta Biosciences is developing a class of drugs that work by modulating the human microbiome.

4. [Viome](#)

Funding: \$74M

Founded in 2016, Viome has developed technology aimed at balancing microorganisms in the gut.

Public Microbiome Companies

1. [Seres Therapeutics](#)

Founded in 2010, Seres Therapeutics is a microbiome therapeutics company focused on discovering and developing Ecobiotic therapeutic products. The drugs discovered by the company are designed to restore health by repairing the function of dysbiotic microbiome.

2. [Evelo Biosciences](#)

Founded in 2015, Evelo is pioneering therapies that modulate systemic immune response by acting on the gut-body network to treat diseases, including cancer and autoimmune, metabolic, neurobehavior, and neuroinflammatory diseases.

3. [Kaleido BioSciences](#)

Founded in 2015, Kaleido BioSciences is a clinical-stage healthcare company with a differentiated, chemistry-driven approach to leveraging the potential of the microbiome organ to treat disease and improve human health.

Top Foreign Companies

1. [Snipr Biome](#) (Denmark)

2. [DayTwo](#) (Israel)

3. [Genome and Company](#) (South Korea)

4. [ChunLab](#) (South Korea)

5. [Eligo Bioscience](#) (France) ●



MERGERS & ACQUISITIONS

Conagra Brands Inc. is reportedly in talks to sell its Hebrew National hot dog brand to **JBS SA**, according to people familiar with the matter. The deal could be valued at around \$700 million, reported *The Wall Street Journal*.

Smithfield Foods acquired meat processing company **Mecom Group** from **Penta Investments**, reported *Meat + Poultry*.

Alimentation Couche-Tard will sell 49 sites in Oklahoma to **Casey's General Stores** for \$39 million in an all-cash transaction.

General Mills entered into a memorandum of understanding to sell its 51% controlling interest in **Yoplait S.A.S.** to French dairy cooperative **Sodiaal** in exchange for full ownership of the Canadian Yoplait business and a reduced royalty rate for use of the Yoplait and Liberté brands in the U.S. and Canada.

Mondelez International acquired a majority interest in U.K.-based sports nutrition brand **Grenade**. The company has been growing in popularity in the U.K., North America, and Asia Pacific markets, reported *MarketWatch*.

Yum Brands is buying Israel-based startup **Tictuk Technologies Ltd.**, whose software helps customers order food to go via text and social-media apps, reported *The Wall Street Journal*.

AeroFarms merged with special purpose acquisition company **Spring Valley Acquisition Corp.** in a deal valued at \$1.2 billion, setting the stage to go public. The deal is expected to provide the vertical farming company with \$357 million in proceeds, reported *MarketWatch*.

Nestle completed its \$4.3 billion sale of bottled-water brands to **One Rock Capital Partners** and **Metropolis & Co.**, reported *CBS News*. ●



ACQUISITION SPOTLIGHT

Restaurant booking and relationship-management company **Tock** is being acquired by **Squarespace** in a cash-and-stock deal worth more than \$400 million. **Tock** is used to help with online reservations, table management, takeout and events.

Tock founder and CEO **Nick Kokonas** said in a press release that the acquisition “creates an opportunity to deliver a best-in-class solution to millions of entrepreneurs and small businesses around the world.”

Earlier this month, **Squarespace** raised \$300 million in a funding round to reach a valuation of \$10 billion, reported *PYMNTS* (March 31).

BUSINESS BUZZ

Koniz, an Egypt-based food aggregator, attracted \$4.8 million in seed funding, reported *TechCrunch*.

Lineage Logistics raised \$1.9 billion in a funding round to help back new acquisitions, facilities, and warehouse automation efforts. The financing brings the company's valuation to around \$18 billion, reported *The Wall Street Journal*.

Fridge No More, a U.S. grocery delivery service, closed a \$15.4 million Series A funding round. The financing will enable the company to expand

operations throughout the East Coast.

Pure Harvest Smart Farms attracted \$50 million in growth funding via a first-of-its-kind Sukuk financing solution. The Abu Dhabi-based company specializes in sustainable technology-enabled agribusiness.

Eat Beyond portfolio company **Nabati Foods Global Inc.** closed an over-subscribed \$7.7 million private placement and has restructured with plans to go public. Edmonton-based Nabati offers natural, plant-based foods for health-conscious consumers.

Shelf Engine raised \$41 million in a Series B financing round. The company's intelligent automation system uses advanced statistical models, machine learning and neural networks to generate the most accurate orders for grocers.

San Francisco-based **Eat Just** secured an additional \$200 million in a funding round led by the **Qatar Investment Authority**. The proceeds will be used to build capacity for the company's products, accelerate research programs, and build brands in key international markets. ●

FOREIGN DEALS

Carrefour closed its acquisition of Spain-based **Supersol**. The transaction includes 172 c-stores and supermarkets, primarily in the Andalusia and Madrid regions, reported *MarketWatch*.

Nova Scotia-based **Empire Company** will pay \$357 million for a 51% stake in specialty grocer **Longo's** and its

Grocery Gateway e-commerce business. Empire's portfolio already contains Sobey's and Farm Boy, reported *CBC*.

Vancouver-based **Eat Beyond** added **SIRE Bioscience** to its portfolio. SIRE is a CPG life science company focused on the plant-based foods and supplements industry.

Carrefour SA will acquire **Grupo BIG Brasil SA** from **Walmart** and **Advent International Corp.** for roughly \$1.3 billion, reported *MarketWatch*.

Dija agreed to acquire Cambridge-based **Genie** to expand its 10-minute grocery delivery service across the U.K., reported *TechCrunch*. ●

LATEST FINANCIAL REPORTS

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



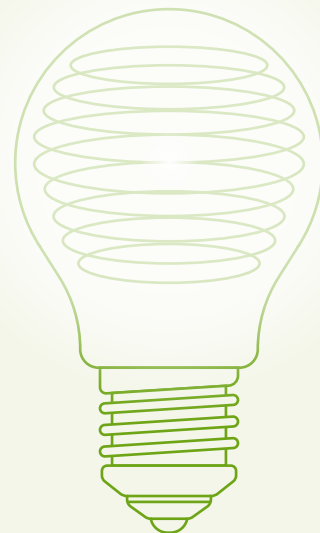
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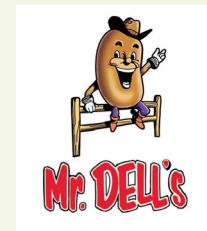
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