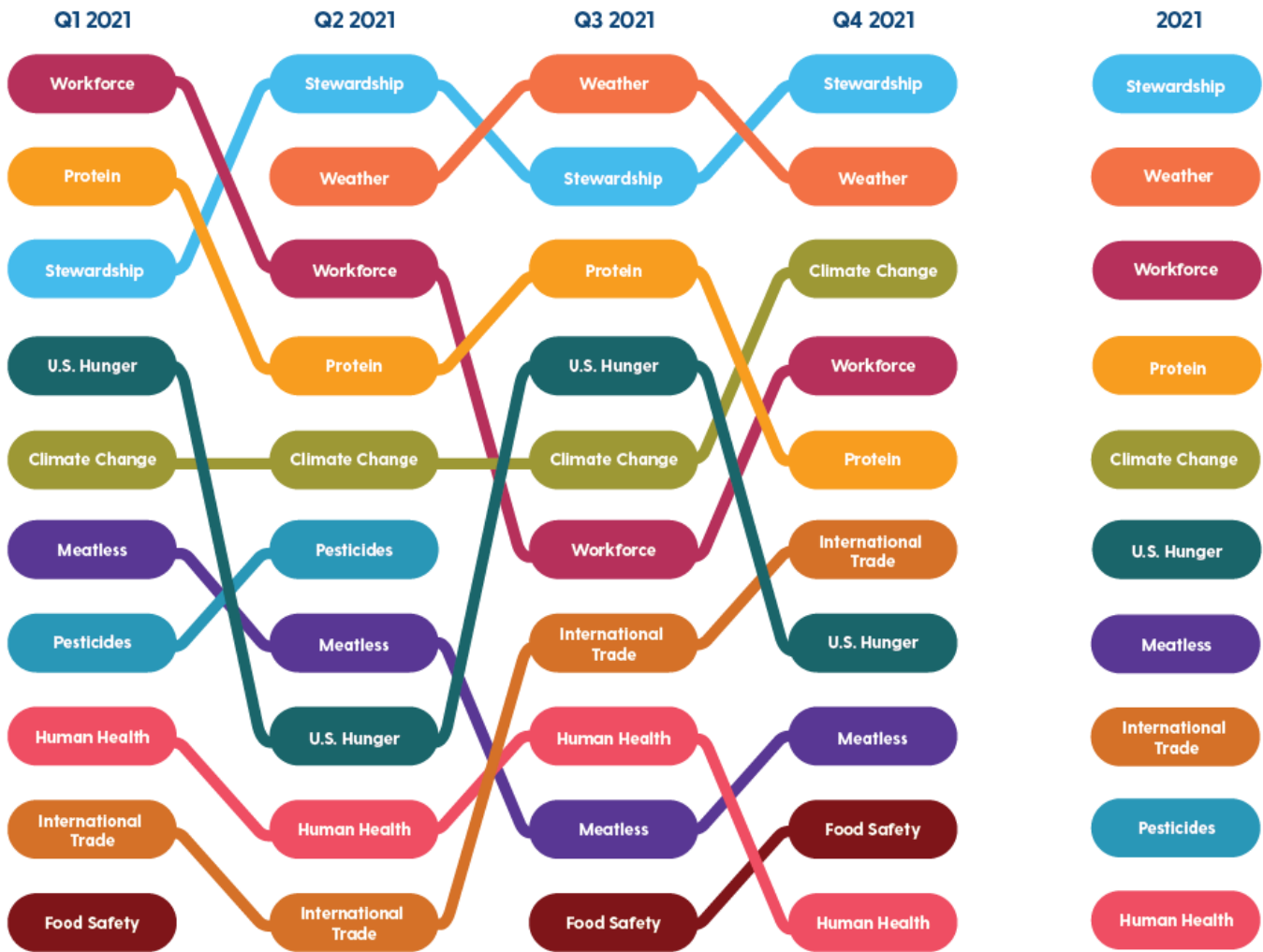


Gearing Up for Global Challenges

Top Ten Topics: 2021 in Review



In a year when administrations changed in the United States, the food industry faced global problems. The causes and effects of climate change managed to compete with the pandemic for importance in 2021. This year marked the first time that climate change, farm stewardship and weather — the three interrelated topics we refer to as “the trifecta” — all finished in the top five spots. As academics, agriculturalists and activists weighed in, regulators, legislators and food brands codified policies that will shape the climate impacts of the food supply chain.

The coronavirus pandemic continued to disrupt food production and distribution. Worker shortages vexed the industry as companies fought viral variants and vaccine

hesitancy. Tight labor markets further snarled a supply chain that was already struggling with cyberattacks, shifting demand and shipping container shortages. As a result, food prices climbed during a time of heightened food insecurity.

Yet, in the face of such adversity, food companies have used the opportunity to pursue fresh visions of what makes their products “good.” From worker well-being to environmental stewardship to nutrition, corporate social responsibility efforts have emerged stronger. While many of these efforts are touched on in the topics below, we also have resources that cover the [evolution of corporate responsibility](#) and [how Bader Rutter can help brands](#) tell those stories.

1. Stewardship

Environmental management of the land, water and air quality on and around farms and ranches



Policymakers and food brands have increasingly positioned farm stewardship practices as tools in the fight against climate change. Leaders from both groups spent the year building programs that encourage the adoption of climate-friendly practices.

The largest private sector trend of the year saw [Cargill](#), [Nestlé USA](#), [Kellogg Company](#) and [Knorr](#) (owned by Unilever) increasing support for regenerative agriculture practices. For Earth Day (April 22), PepsiCo [announced](#) its Positive Agriculture Agenda; General Mills [completed](#) its goal to “sustainably source 100% of [its] top 10 priority ingredients”; and Mars, McCormick Company and PepsiCo [partnered](#) to trace sustainability practices in supply chains. Leading up to the United Nations Food Systems Summit, Barry Callebaut [targeted](#) feed choice for dairy cows as a way to mitigate CO₂ emissions.

Rewarding farmers for sequestering carbon in soils drew the attention of both corporations and policymakers. Land O’Lakes [launched](#) a carbon marketplace on February 4, touting Microsoft as its first buyer of carbon offsets. In September, Cargill [linked](#) its regenerative

agriculture program to a carbon market. The U.S. Senate [passed](#) the Growing Climate Solutions Act in June, which would grant the USDA the authority to establish a national carbon market to encourage certain farming practices. However, the bill stalled in the U.S. House of Representatives. Environmental Defense Fund examined how the USDA might implement such policies. Politico [captured](#) concerns from some agriculturalists about how the policy will actually be implemented.

As the year progressed, water took over as the leading resource to manage. In California, legislators [limited](#) surface water use for agriculture beginning in July. On August 16, the U.S. Department of the Interior [declared](#) a water shortage for the Colorado River Basin for the first time. ProPublica [examined](#) how water rights are distributed, with 70% of the river’s water used for farmland irrigation. A federal judge [vacated](#) a Trump administration update to the definition of “waters of the United States” (WOTUS) under the Clean Water Act on August 30. Agriculturalist groups, including the [National Cattlemen’s Beef Association](#) and [National Farmers Union](#), worried that farms will be forced to deal with “unnecessary” regulations as a result.

2. Weather

Weather conditions and their effect on farming

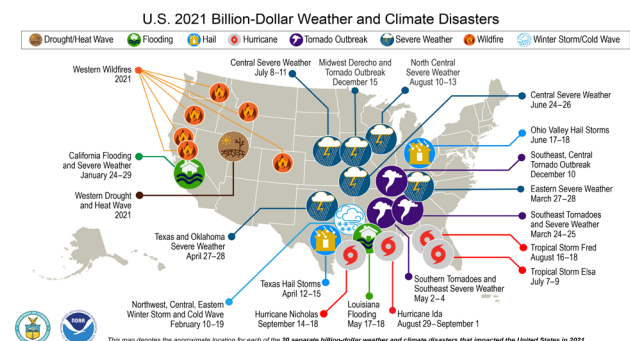


Following a historic weather year in 2020, Mother Nature further challenged food production in 2021. The National Oceanic and Atmospheric Association (NOAA) [tracked](#) devastating wildfires, drought conditions, extreme temperatures, hurricanes and tornadoes that put 2021 on pace to

surpass last year’s economic losses.

Throughout the year, the U.S. Drought Monitor [visualized](#) the extent of drought, which covered as much as 99% of the western United States in August. For cereal crop powerhouse North Dakota, drought conditions [started](#) with its driest winter in 126 years. The Los Angeles Times reported that California [recorded](#) its driest year in a century, limiting water availability for the farms that produce approximately one-third of the nation’s vegetables, two-thirds of its fruit and 80% of the global almond supply. The Counter [shared](#) research from University of California, Davis, aimed at developing drought-tolerant orchards to cope with the problem. Meatingplace noted that many ranchers [sold off](#) cattle when forage ran dry. Around harvest, Reuters [covered](#) projections of the wheat crop to be the worst in 33 years.

In February, extremely cold temperatures as well as massive snow and ice accumulations [caused](#) Texas Agriculture Commissioner Sid Miller to issue a critical alert for the



NOAA tracks billion-dollar weather disasters

state’s food supply. In contrast, triple-digit temperatures hit the Northwest in June. Civil Eats [escalated](#) calls for farmworker protections to address “longstanding injustices compromising farmworkers’ health.” Eater [addressed](#) restaurant closures in Seattle just a year after wildfire smoke ruined air quality.

Flooding and tornadoes left damage throughout the Eastern half of the country. In June, historic flooding in the Southeast [damaged](#) crops across Arkansas, Louisiana, Mississippi and Tennessee, with Mississippi State University [estimating](#) more than \$600 million in damages. Hurricane Ida [made landfall](#) on August 29, disrupting operations from Louisiana to New England. Agri-Pulse [summarized](#) the damage around the Gulf of Mexico: Unusual December tornadoes left destruction in hard-hit Kentucky where livestock and grain operations sustained damage.

3. Workforce

Pay, benefits and safety of workers



If Mother Nature wasn't enough of a challenge, a labor shortage and the ongoing pandemic were ready to complicate business further in 2021. With vaccines becoming available early in the year, pandemic-related safety measures led policy decisions.

In March, Biden [signed](#) the American Rescue Plan, which included provisions for additional COVID-19 testing, personal protective equipment and stimulus checks. By August, Tyson Foods [declared](#) that its workers would need to be fully vaccinated by November 1. That same day, New York City Mayor Bill de Blasio [issued](#) a vaccine mandate for indoor dining. On November 4, OSHA [announced](#) a requirement that large employers would need to provide proof of vaccination or weekly COVID-19 testing for employees. The rule was quickly [blocked](#) and [reinstated](#) by federal appeals courts, ultimately being [overturned](#) by the Supreme Court on January 13 (CNBC).

Businesses seeking to resume normal [operation](#) found that every link in the supply chain faced a labor shortage. The National Grocers Association [blamed](#) “the broken

unemployment insurance program” for encouraging workers to stay home, while a Wall Street Journal investigation [found](#) that concerns about working conditions, risk of COVID-19 infection and lack of childcare options also factored into workers' decisions.

“AS THE COVID-19 PANDEMIC HAS WORN ON AND SUPPLY CHAIN PRESSURES HAVE INTENSIFIED, WE HAVE RUN OUT OF SLACK IN THE SYSTEM. THE LABOR SHORTAGE IS DRIVING THE MAJORITY OF ISSUES IN THE SUPPLY CHAIN.

— GEOFF FREEMAN, PRESIDENT AND CEO,
[CONSUMER BRANDS ASSOCIATION](#)

In a tight labor market, unions suddenly found they had the upper hand when negotiating wages and benefits, resulting in a wave of strikes that picked up speed by the fourth quarter. On November 17, John Deere workers [accepted](#) a contract after a five-week strike. On December 16, Kellogg's [reached](#) an agreement with 1,400 cereal workers, ending a nearly three-month strike. Then, in mid-December, a Buffalo-area Starbucks store [made history](#) by becoming the first at the company to unionize.

4. Protein

Protein as a nutrient and its role in human diets



Protein continued to hold its spot as the macronutrient of choice throughout the year. In pre-pandemic times, protein dominated nutritional conversations, amplified by the emergence of plant-based and cell-cultured alternatives.

COVID-19 ushered in an additional layer to the protein discussion, as supply chain snarls and worker issues in meat processing plants competed with the increased demand for protein.

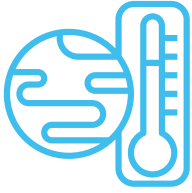
In March, North American Meat Institute's Power of Meat study [found](#) that retail sales of meat rose by 20%, with 43% of Americans increasing their meat purchases during the pandemic. Mintel [confirmed](#) the trend, calling it “a temporary setback for the flexitarian movement.” The trend prompted Mother Jones writer Tom Philpott to [quip](#): “Despite all the fake meat, Americans are still gobbling up the real stuff.”

The supply chain difficulties punctuated news headlines throughout the year. Wingstop [provided](#) the best example midyear by launching new products under the brand of Thighstop. In a report [published](#) on September 8, the Biden administration pinned blame for high meat prices on “a lack of competition at a key bottleneck point in the meat supply chain: meat-processing.” The administration [established](#) a \$500 million fund in July to expand competition, later [expanding](#) the program to \$1 billion.

Cell-cultured meat production saw an influx of attention. Notable investments include Nestlé [collaborating](#) with Future Meat Technologies, Israel-based Aleph Farms [raising](#) \$105 million for cell-cultured beef production and Meati Foods [naming](#) heavyweights Walter Robb and The Alinea Group as investors in its quest to produce “whole-muscle” alternative meat at scale. On the labeling front, the USDA [closed](#) a comment period for labeling of foods derived from cell-cultured protein on December 3.

5. Climate Change

Current and predicted effects of climate change on food production



The causes and effects of climate change often overlap with other leading topics, particularly weather and stewardship practices. This year also saw an increase in national and corporate policies that will affect food supply

chains going forward.

Shortly after taking office, President Biden [signed](#) a number of executive orders that established his climate agenda. Friends of the Earth [cheered](#) the nation's reentry in the Paris Climate Accord. At the opening of an April 22-23 climate summit, President Biden [pledged](#) to cut U.S. greenhouse gas (GHG) emissions by 50% by 2030. Agriculture Secretary Tom Vilsack announced more than \$500 million of funds for "climate-smart" [research](#), [infrastructure](#) and [conservation](#) projects. The American Farm Bureau Federation [welcomed](#) the opportunity to "achieve sustainability goals while ensuring climate policies remain market-based and voluntary."

The U.N. [hosted](#) its annual climate change conference

(COP26) in Glasgow October 31 to November 12. Food Navigator [covered](#) concerns about lack of action on previous years' commitments to reduce deforestation. The conference included goals to reach net zero carbon emissions by 2050. Consumer-facing brands made similar commitments throughout the fourth quarter: [Ahold Delhaize](#), [Restaurant Brands International](#), [McDonald's](#), [Kraft Heinz](#) and [Mondelez](#). Additionally, midstream brands [ADM](#), [Bayer](#), [Pilgrim's](#) and [JBS USA](#) (which owns a majority of Pilgrim's) all pledged to reduce greenhouse gas emissions by at least 30% by 2030.

Beef served as a scapegoat for emissions from food production. Recipe website Epicurious [ceased](#) publishing recipes containing beef, calling the meat "one of the world's worst climate offenders." Bill Gates [suggested](#) eating plant-based burgers to minimize carbon footprints. An April 22 Daily Mail article provoked political backlash to the Biden administration's climate plan after the tabloid [speculated](#) it could mean a 90% reduction in red meat consumption. Secretary Vilsack [clarified](#) that the report was false (Politico).

6. U.S. Hunger

Food-related welfare policy and food insecurity in the United States



Conversation volume around hunger subsided slightly since reaching peak levels mid-2020 when food security was at the forefront of pandemic concerns. In its midyear State of Food Security and Nutrition in the World report, the U.N. Food and

Agriculture Organization [found](#) that nearly 10% of the world is undernourished. In the United States, Feeding America [estimated](#) that more than 38 million people, including 12 million children, face food insecurity.

Shortly after taking office in January, President Biden [signed](#) an executive order that advocated boosting the Supplemental Nutrition Assistance Program (SNAP, aka food stamps), rolling back Trump-era SNAP restrictions. In August, USDA [announced](#) an update to the Thrifty Food Plan, which determines the value of SNAP benefits. The Counter [summarized](#) how this update would represent the biggest benefit increase in the history of SNAP, with an increase of 27%.

Feeding schoolchildren — whether remote or in-person — remained a persistent topic. At the School Nutrition Association's legislative action conference in March, USDA Secretary Vilsack announced that all schoolchildren would receive free meals throughout the school year ([Food Management](#)). With students returning to in-person learning, much of the discussion centered on supply chain missteps

and labor issues affecting a smooth delivery of food and beverages to students ([NBC News](#)).

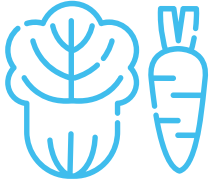
Ever in the position to mitigate hunger, food producers stepped up their philanthropic efforts through corporate donations and stocking food banks. Our December 3 edition of Friday by Noon [detailed](#) many of these efforts by manufacturers, retailers and foodservice companies during the holiday season.



USDA updates value of food stamp benefits.

7. Meatless

Vegetarianism, veganism and substitutes for animal products



Plant-based protein sales stalled as the pandemic stretched on for a second year. Some restaurants also sought to combat supply chain problems, rising food costs and the lack of available labor by simplifying menus and the quiet removal of limited-time plant-based protein offerings. Bloomberg's Leslie

Patton and Deena Shanker [wrote](#) that "the novelty is already wearing off." Chris DuBois from IRI [cited](#) three possibilities: "The products don't meet the consumer's perception of clean, companies in the category have not proven their products are more sustainable than conventional meat products, and competition."

While sales declined, that didn't thwart investors. Established player Impossible Foods [pulled in](#) \$500 million in additional funding. Meanwhile, a myriad of startups, from [Air Protein](#) to [V2food](#), led successful funding rounds. Newcomers [Nature's Fynd](#), [Motif FoodWorks](#) and [NotCo](#) each raised more than \$200 million in their latest funding rounds.

Big brands joined in on the trend as well. McDonald's [debuted](#) its meat-free McPlant burger, Taco Bell [partnered](#) with Beyond Meat and Burger King [became](#) the first fast-food chain to offer the plant-based Impossible Nuggets. Chipotle [took](#) a different approach by offering its own soy-based chorizo alternative at locations nationwide for a limited time. But traditional vegetarian options haven't completely fallen off the menu — Wendy's [piloted](#) a black bean burger in June.

8. International Trade

Imports and exports of food and agricultural products



With President Biden taking office in January, attention to trade policy fell from its peak during the Trump administration. Biden initially left tariffs and trade agreements unchanged and [signed](#) a "Made in America"

executive order. The first major change came when the administration [suspended](#) tariffs on food, whiskey and wine imported from the European Union, effective March 5.

Pandemic-related strains on the supply chain created shipping container shortages that Reuters [noted](#) were worsened by the blockage of the Suez Canal in March.

North American Meat Institute President and CEO Julie Anna Potts [testified](#) on June 15 that the port delays have "caused \$1.5 billion in lost revenue" and "could have long-lasting, detrimental effects for the trade-dependent U.S. meat and poultry industry." Although the Federal Maritime Commission [assured](#), "The problems we are experiencing are not new. They occur in every cargo 'surge' or 'peak season,'" the problem persisted through year-end. On October 13, President Biden [announced](#) a "90-day sprint" to help the Port of Los Angeles clear its backlog, which had swelled to 100 ships waiting offshore. Consumer Brands Association [highlighted](#) one potential obstacle: "For every one truck available, there are 16 shipments waiting."

9. Pesticides

Herbicides, fungicides, insecticides and other forms of pest management



Pesticide use in food production persists as a top topic because of activist group pressure to enact policy changes. Environmental Working Group [garnered](#) mainstream coverage for its annual "Clean Fifteen" and "Dirty

Dozen" produce reports. A coalition of organizations [pressured](#) Kroger to [update](#) its pollinator policy in June. Walmart, on the other hand, headed off such criticisms by [committing](#) to using "suppliers that adopt IPM [integrated pest management] practices, as verified by a third-party, by 2025." Farmer's Daughter blogger Amanda Zaluckyj [objected](#) that the world's largest retailer is now "telling farmers how to farm."

On the regulatory front, the herbicide dicamba took the spotlight. On May 24, the EPA's Office of Inspector General [concluded](#) the agency did not perform the proper procedures when permitting the extended use of three dicamba products in 2016 and 2018. In a December 21 report, the EPA [found](#) that additional precautions implemented in 2020 "show little change in number, severity, or geographic extent of dicamba-related" damage to non-target crops. The American Soybean Association [questioned](#) the validity of EPA's data. Center for Food Safety [balked](#) at EPA's "cowardice" for not withdrawing the registration.

10. Human Health

Diet-related health conditions, including obesity, diabetes and hypertension



The pandemic ignited new and old conversations about health and wellness. A March NPD Group report [documented](#) increased relevance of “food as medicine” with consumers looking for physical and mental health

benefits. Nutritional Psychiatrist and author Dr. Uma Naidoo [told](#) CNBC that berries are among her top foods for brain health, which can “reduce symptoms of anxiety and help fend off neurodegenerative diseases like dementia.”

Mounting scientific evidence shows negative effects of ultra-processed foods. Tufts University [researchers](#) found that children and teenagers get two-thirds of their calories from ultra-processed foods, while Science Daily [published](#) findings from an NYU School of Global Public Health study that suggested increased consumption of ultra-processed foods over 18 years may be contributing to obesity and other diseases. Plant-based meat products often targeted for being overly processed were found to contain “unnecessarily high” salt content, according to a UK study by Action on Salt [reported](#) in Food Ingredients First.

Timeline: Events That Shaped 2021

While the Top Ten Topics highlight the biggest concerns in food production, the most salient events do not always fall neatly into a category and often bridge several topics. Here, we highlight the events that sparked the most conversations.

| | |
|-----------------|--|
| Jan 1 | California Proposition 22 takes effect, classifying delivery workers as contractors. |
| Feb 23 | U.S. Senate confirms Tom Vilsack as USDA secretary. |
| Mar 11 | Senate confirms Michael Regan as EPA administrator. |
| Mar 23 | Court upholds USDA National Organic Program decision to allow “organic” label on hydroponically grown food . |
| April 6 | FDA concludes investigation of 2020 <i>E. coli</i> outbreaks tied to leafy greens. |
| May 11 | World Food Prize awarded to Shakuntala Haraksingh Thilsted for her study of aquaculture and nutrition. |
| May 31 | JBS suffers cyberattack; shuts down production for two days. |
| June 8 | USDA announces \$4 billion plan to build supply chain resilience. |
| June 9 | Kroger flies first commercial grocery delivery by drone. |
| June 9 | President Biden issues executive order “promoting competition” in meat processing. |
| Aug 3 | Tyson announces requirement for all employees to be vaccinated or tested weekly for COVID-19. New York City issues similar provisions for indoor dining. |
| Aug 16 | Biden administration updates food stamp benefit calculations, increasing payments by 27%. |
| Aug 29 | Hurricane Ida makes landfall south of New Orleans, crippling grain exports. |
| Sept 6 | Bovine spongiform encephalopathy (BSE) found in Brazilian beef. China imports U.S. beef to fill gap. |
| Oct 13 | President Biden announces “90-day sprint” to clear backlogs at Port of Los Angeles. |
| Oct 31 - Nov 12 | United Nations holds COP26 climate conference in Glasgow. |
| Nov 4 | OSHA announces emergency temporary standard for worker vaccination. |
| Dec 13 | Tornadoes hit Kentucky, disrupting poultry production. |

Wrapping Up the Year

Each year, we enjoy browsing through other groups' takes on the "greatest hits." Here are our favorite articles that look back on 2021 and predict 2022, covering topics from farmgate to plate.

| Source | Article Link |
|-----------------------------------|--|
| The Scoop | Farmers Share 2022 Conservation Ag Goals |
| AgFunder News | These were the top 20 agrifoodtech funding deals of 2021 |
| Rabobank | Global Animal Protein Outlook 2022: Capitalizing on Ongoing Market Disruptions |
| Food Ingredients First | Plant-based trends 2022: Cleaning up the label, snacking innovation, egg replacements and alternative proteins |
| Tate & Lyle | Tate & Lyle reveals key global consumer trends driving food and beverage product innovation |
| Consumer Brands Association | 5 Watchwords for CPG Brands in 2022 |
| Food Safety News | More looking back at 2021 recalls |
| Eater | Trend: Restaurant QR Code Menus Are Here to Stay |
| National Restaurant Association | Restaurant Menus in 2022 will Focus on Healthier Planet and Healthier Consumers |
| DoorDash | The DoorDash Deep Dish: Best of the Neighborhood in 2021 |
| Dairy Farmers of Wisconsin | Top Cheese Trends to Watch for in 2022 |
| The New York Times | 10 Lessons We've Learned About Eating Well |
| Food52 | 28 Best New Cookbooks 2021 |
| Natural Resources Defense Council | 2021 Year-In-Review: Food Waste |

Follow The Leaders

Our data hinges on knowing the leading voices in several sectors of food and agriculture production and we regularly update our database to include new leaders. The pandemic put a heavier focus on the middle of the supply chain this year, evidenced by heavy turnover in the manufacturing, distribution and retail channels.



GOVERNMENT

President Joe Biden took office January 20. Climate change and workforce policies have led the administration's agenda, displacing the role of trade agreements under the Trump administration.

Tom Vilsack reprised his role as secretary of the USDA, which he previously held during the Obama administration. The Iowa native was hired for his ability to balance industry and activist group interests.

Michael Regan took up the helm of administrator at the EPA. Regan, too, has been extolled as a negotiator who is willing to find common ground.



ACADEMICS

Gad Allon is a professor of operations at Wharton School at the University of Pennsylvania, where he [focuses on](#) supply chains and directs the Management and Technology Program.



CULINARY

Stephanie Izard is a celebrity chef and owner of Chicago restaurant Girl & The Goat. Izard [stepped into](#) the newly created role of chief restaurant advisor at DoorDash, where she serves as a liaison for the restaurant industry.



AG INPUTS

Scott Wine [joined](#) CNH Industrial as CEO in January. Better recognized by brand names Case IH and New Holland, CNH is a leading producer of farm equipment.

Chuck Magro [began](#) his tenure as CEO at Corteva Agriscience in November. Corteva produces seeds and crop management materials for farm production.



INDUSTRY GROUPS

Robert Nelson [joined](#) the National Association of College & University Food Services (NACUFS) as CEO in April. The industry group has helped campus dining services navigate the uncertainty of foodservice through lockdowns and outbreaks.

Krysta Harden [filled](#) the role of president and CEO at U.S. Dairy Export Council in February. USDEC has advocated for policies to clear up port backlogs and lift tariffs on dairy exports to Canada

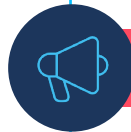
Bryan Humphreys [stepped into](#) the role of CEO at the National Pork Producers Council. NPPC has prioritized lower barriers to trade both overseas and within the U.S.



PROCESSORS

Peter Brown [assumed](#) the role of president at Seaboard Foods in January. Seaboard is the fourth-largest pork processor in the United States.

Antoine de Saint Affrique [took on](#) the role of CEO at Danone in September. As the third-largest food manufacturer in the world, Danone has been a key player in developing plant-based proteins.



SPECIAL INTEREST

Liz Shuler [became](#) the first woman president of the AFL-CIO when she was elected in August. The union supported worker strikes at manufacturing facilities this fall.

John Reeder [brought](#) three decades of EPA experience to Environmental Working Group, where he will serve as vice president for federal affairs.



CHANNELS

Tracy Skeans [advanced](#) to the position of chief operating officer at Yum! Brands in February. Skeans oversaw leadership transitions at subsidiaries Pizza Hut and Taco Bell as the chains adjusted to pandemic pressures.

Fidji Simo [joined](#) Instacart as CEO in July. The grocery delivery app has served a crucial role in pandemic purchasing patterns.

Sandy Douglas [assumed](#) the role of CEO of United Natural Foods, Inc. (UNFI) in August. The largest natural foods wholesaler and distributor has seen business boom during the pandemic.



MEDIA

Leah Douglas [moved](#) to Reuters in September to cover agriculture and energy. While at the Food & Environment Reporting Network, Douglas led an initiative to track COVID-19 outbreaks at food production facilities.

Adam Ragusea [established](#) his YouTube channel as an authority on food science and history. The former journalism professor reaches 1.7 million subscribers with investigations into cooking and food production techniques.