

# RETHINKING FOOD: RESTRUCTURING AN INDUSTRY FROM THE FARM TO THE TABLE



## CONTEXT & DYNAMICS

**Technology, climate change, healthcare and ethical perspectives** are converging on the food production systems that have been in place for decades. The convergence of such widespread forces is triggering an extensive restructuring of the food system, from agriculture to retail to consumption. In agriculture, the convergence is forcing changes around Automation, Big Data, Precision Applications, Sustainability and New Locations. For food at retail, the changes include New Competitors at Scale, Delivery, Pricing and Automation. And finally, for consumers, changes are taking place in Healthy & Smart Eating. The industry seems to be facing some unusual and challenging ethical issues, including shifting attitudes about the environment, and new applications, such as food as medicine. This makes for a complex era, in which new consumer interests trigger the development of new kinds of foods, which affects farming; and conversely, new kinds of food production methods lead to new kinds of restaurant offerings, which affect what consumers eat. As a result, this restructuring is prompting a period of price and product volatility, and that could cause some surprise successes and failures.

## IMPLICATIONS

- High-tech automation is spreading to farms, restaurants and groceries as well as among consumers, prompting changes in offerings and preferences.
- Health, climate change and efficiency are increasingly intertwined in the food industry, creating changes in what is produced, sold and consumed.
- Sustainability in farming and food retail as well as in individuals' personal well-being is forcing changes in the perceptions of foods and their effects.
- Health issues, with the medical professional increasingly envisioning food as medicine while putting pressure on food production, are also adding a new kind of market.
- The restructuring of the entire food industry could put some pressure on fast foods to move along a pathway of change, as slow foods, sustainability and healthcare push back against traditional offerings in the fast food sector.



## Troubled Food

Restaurants like to define themselves as “farm-to-table” enterprises, meaning that they bring food directly from the farm to their kitchens and onto their tables. Were it so simple. The farm is facing difficulties, with prices falling, workers disappearing and markets vanishing, all of which is threatening their existence. From the farm, most food travels to grocery stores, which are facing an industry reworking, with new competitors, online customers, proliferating delivery systems and changing consumer tastes. And finally, consumers themselves, both as restaurants’ customers and home cooks, are changing their perspectives on what they eat, how they want food to arrive at their tables and how much they are willing to pay.



In short, the entire scope of the food industry has entered its own period of what we have called the Great Restructuring. To get a better understanding of why such a farm-to-table rethink is taking place, consider the current reality of just one segment of the entire industry: the American farmer:

◆ In just a few months last year, American farmers lost \$8 billion because of the U.S.-China trade war, which has led to roughly 25 million metric tons of soybeans, for example, going unsold this year. (*History Today*, 5/19)

◆ Seventy percent of agriculture workers in the U.S. were born in Mexico, while only 25 percent are native born in the U.S., and half of all farm workers are not in the U.S. legally. With the squeeze on undocumented workers, farmers have requested nearly 200,000 H-2A visas, which are costly and slow in processing, resulting in labor shortages on farms coast to coast. (*New York Times*, 4/3/19; *Washington Post*, 3/17/19)

◆ For four straight years, farm incomes have declined, meaning that as of last year, the average net income of American farmers was 45 percent below that of 2013. (*Christian Science Monitor*, 12/10/18)

◆ The number of farm operations in the U.S. declined by 3.2 percent last year, and the total acreage farmed went down by 1.6 percent, meaning that 105,453 farms produced 75 percent of all sales in 2018, down from 119,908 farms that produced that percent of sales in 2012. As a result, only two of every five farmers claim farming as their primary job. (*Washington Post*, 4/13/19)

◆ Last year, twice as many farmers in Illinois, Indiana and Wisconsin filed for bankruptcy as did in 2008, and farm bankruptcies in North Dakota and Arkansas jumped 96 percent. (*Huffington Post*, 2/11/19)



These kinds of pressures have consequences all the way through the food industry. A closer look at each segment of the food industry – Agriculture; Food at Retail; and Consumers, the Final Voice – might clarify how such pressures are affecting different segments of the entire food industry.

## Agriculture

In the shift from landed wealth to industrial wealth in the late nineteenth and early twentieth centuries, the number of workers on American farms dwindled, yet what was called the “factory-to-farm” movement increased efficiency. Workers moved to the cities, where factory work paid better wages, leaving farmers to depend more on newly manufactured machinery. For instance, before the Civil War, it took 61 hours of labor to produce one acre of wheat. By the turn of the century, it took only three and a half hours. In 1820, 70 percent of American workers toiled in agriculture, but by the 1890s, the number had declined to 43 percent on its way to single digits early in the twentieth century. Jobs created by industrialization in cities attracted farm workers, but at the same time, the technological products of that industrialization (e.g., tractors, combines) made agriculture more efficient and, for the most part, counteracted the effects of fewer workers. (*New York Times*, 6/22/19)

High tech could do for farming now what industrialization did for farming in the last century. New technologies emanating mostly from cities are finding their way to farms, in the forms of Automation, Big Data, Precision Applications, Sustainability and New Locations.

**Automation** – Robots and drones are compensating for a lost workforce. For instance, Harv, the nickname for the Harvest CROO Robot, can pick soft produce, such as strawberries, and harder fruits, such as apples, without harming the fruit. While Harv’s current rate of picking from **each plant** is lower than what humans can pick, it can cover **a dozen rows of plants** at the same time, harvesting eight acres per day, essentially doing the work of 30 laborers. In China, drones spray fertilizer on wheat fields, and the government is subsidizing the farmers’ purchases of the drones. (*Washington Post*, 3/17/19; *China Daily*, 4/19/19)

**Big Data** – Case IH, a farm-equipment manufacturer, is launching its AFS Connect Magnum tractor, which can be operated remotely and which has cameras and sensors all around it to view plants and aggregate data about their growth and whether they are at risk. Farmers can get help analyzing the piles of data being collected by hiring an outside firm, such as Farmers Business Network, to digest data and deliver action items to them. Meanwhile, John Deere, a competitor of Case IH, is working with 100 software companies to develop algorithms

to extract meaning from the mass of collected data. From the seat of a tractor or truck, farmers can now use data gathered by drones, sensors and cameras in the field to determine seeding, fertilizer and pesticide applications, harvesting time and tillage. “When our machine comes to the field,” offered a John Deere executive, “it knows what it should be doing; the operator hits the ‘go’ button, and it executes. That’s the path we’re on.” (*Progressive Farmer*, 4/19; *New York*, 2/11/19)

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*“What don’t you understand? When my clients fly their guests over your farm on the way to Vegas, they’d like to see the words ‘Mazel tov, Josh’ spelled out in your cornfield.”*



### Precision Applications –

Precision comes from utilizing GPS, satellite and drone technologies to assess crop and soil issues down to the centimeter. Another kind of precision is demonstrated by Blue River's LettuceBot, with 20 onboard processors, which make 5,000 decisions per second. The robot moves through lettuce fields, assesses the health of each plant and thins weak or diseased sprouts to make a healthier crop. A similar kind of robot can identify a weed and squirt an herbicide to an accuracy within one inch to kill the weeds. (*Forbes*, 4/28/19; *Progressive Farmer*, 9/14/18)

**Sustainability** – Depleting natural resources, whether water, oil, gas or topsoil, is not sustainable over time. The Rodale Institute has studied conventional and organic agriculture for more than 30 years, and it has found that a manure-based organic system is the most productive, most efficient and healthiest way to farm. Such a system composts animal waste and returns it to the land, while conventional farms dispose of animal waste, typically into toxic pools that pollute air and water. Meanwhile, Land O' Lakes SUSTAIN, a conservation project inside the food-production giant, does research and provides farmers with sustainable solutions to problems that arise in normal farming processes. Dave Stangis, Campbell Soup's chief sustainability officer, explained his company's work with the SUSTAIN project: "Integrating sustainability into our operations is good for the planet, our consumers and our business." (*Guardian*, 5/28/19; *Forbes*, 6/30/19; *Environmental Leader*, 2/18/19)

**New Locations** – Technology is enabling farms to surface in new kinds of locations – in urban areas, in caves and in other areas once thought inappropriate for growing market-sized crops. Companies such as the Bowery, Aero Farms, Bright Farms and Square Roots in the U.S., plus others in Japan, China, England and various European countries, have started so-called vertical farms, mostly indoors, in urban settings and typically automated via new technology. In Rotterdam's harbor, for example, farmers are operating the world's first floating dairy farm, which

All activities are guided by "The Brain," cloud-based artificial-intelligence software that aggregates data from Angus and regulates application of nutrients and water, while monitoring atmospheric conditions in the facility.

is three stories tall, has robotic milking machines, as well as robotic manure collection, a roof that collects rain and solar panels that supply 40 percent of the farm's energy. (*Atlanta Journal-Constitution*, 7/1/19)

A look at just one farm, Iron Ox, in San Carlos (CA), can provide insight into how these farms in new locations operate.

◆ Iron Ox is an 8,000-square-foot indoor hydroponic facility that produces roughly 26,000 heads of leafy greens per year – the typical

output of an outdoor facility five times its size.

◆ "Workers" are mostly robotic and autonomous and move around the facility to change lighting, move 800-pound trays of plants, adjust water use and take other actions.

◆ The above robotic device, called Angus, is a machine that uses four Lidar arrays to collect data about plants and soil conditions, measure water levels and even harvest some crops.

◆ All activities are guided by "The Brain," cloud-based artificial-intelligence software that aggregates data from Angus and regulates application of nutrients and water, while monitoring atmospheric conditions in the facility. It also monitors and directs the few humans who seed the trays, and can be used to harvest the more delicate crops.

(*MIT Technology Review*, 10/3/18; *Guardian Weekly*, 10/19/18)



*"I've done my tour of duty on Wall Street."*

Iron Ox is developing a business model that can remediate critical problems facing farmers: labor shortages, weather variability, energy use and long distances to transport produce from farms to restaurants and groceries – that is, to outlets in the Food at Retail sector.

## Food at Retail

Kroger just released its quarterly earnings, and the food retailer beat expectations, but its results did not come easily. The grocer created partnerships with digital enterprises such as Nuro, Ocado and Microsoft in addition to including digital analytics capabilities to its own operations, all to embed digital technology into its operations. Moreover, Kroger added online grocery pickup at more than 1,500 stores and expanded home delivery to cover more than 91 percent of American households, causing online grocery sales at Kroger to jump 42 percent during the past year. (*Atlanta Journal-Constitution*, 6/21/19; *Supermarket News*, 6/10/19)

As we have observed, nearly all consumer-facing businesses are competing with one another for a piece of consumer time, which means that once-distinct markets now intersect and once-separate enterprises now find themselves competing for customers. As a result, restaurants compete for consumers' time against all kinds of shopping, including grocery stores. Curiously enough, while most retailers have been closing stores, grocery companies have been opening more stores, upping the number of food outlets by 29.4 percent last year, thereby adding 17 million square feet of grocery space (see [inF 1201](#); *Chain Store Age*, 5/19).

Such competitive interaction between the grocery and restaurant businesses, for instance, became more pronounced with the following announcement.

◆ Whole Foods opened its five-hundredth store, which is in Atlanta, and this store houses a food hall, which includes four restaurants owned by the grocer. The restaurants range from a food-truck eatery to a full-service rooftop restaurant to a coffee shop serving bakery goods, sandwiches, espresso drinks and the like. (*Nation's Restaurant News*, 5/6/19)

Grocers have been offering prepared foods for some time, often with a separate area of their stores in which to sit and eat. But a full-service restaurant ups the competition with full-time restaurants, some of whom have responded by situating their tables among market-style grocery displays that include food items that diners can buy and take home.

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**New Competitors at Scale** – Of the top-ten online grocers in the U.S, only two – Kroger and Albertson's – are traditional grocery stores. The remainder, such as Amazon, which was once a bookseller, Walmart, Costco and Target, all three of which were one-time big-box retailers, have simply added groceries to their long-standing stock of consumer goods that they sell online. Two additions to the top ten, HelloFresh and Blue Apron, are actually services that deliver pre-washed

and pre-cut foods in accordance with a menu to enable customers to cook a specific meal at home. One other company on the top ten grocers' list, FreshDirect, is an online-only grocer. (*Supermarket News*, 6/10/19)

**Delivery** – Consumers are supporting delivery of foods from grocery stores as well as restaurants. Such food-on-demand increased food sales by 20 percent and delivery visits by 10 percent over the past five years. Services such as Olo Dispatch, DoorDash and UberEats deliver orders from

all levels of restaurants, from fast-food outlets such as Denny's and IHOP to single-location high-end facilities. Some services are experimenting with robots to deliver food in urban areas. (*Breakfast Journal*, 10/18)

Such market shifts have forced grocery stores to add food delivery to their steadily expanding range of services, with Walmart going so far as to announce plans not only to deliver foods but actually to place the groceries in the customers' refrigerators. This followed Amazon's delivery practice of placing the item inside customers' homes or in the trunks of their cars. Now companies are considering delivery by drone, all in an effort to get ordered foods to customers' homes faster and faster. (*CNN*, 6/7/19)

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*"The takeout finally came, so you can stop your panic cooking."*

**Pricing** – Because new retail food competitors, such as Amazon, Walmart and Target, already have substantial revenues circulating through their enterprises from selling other goods and services, they have pricing power for their grocery sections. Amazon, which is trying to attract more customers to its Whole Foods outlets, announced price reductions of as much as 20 percent on at least 500 items, concentrated in meats and produce. These price reductions are in addition to the 10 percent discount offered to Amazon Prime customers. (*Wall Street Journal*, 4/2/19; *Pymnts*, 4/1/19)

Dollar stores have also encroached on the grocers' territories by offering lower prices on commonly bought food as well as household goods. As of now, in fact, the various dollar stores combined sell more groceries than does Whole Foods, and they are expanding rapidly, the number of stores increasing in the past decade from 20,000 to 30,000. When a Dollar General opened in Merville (IA), sales at Chet's Foods, the local grocery store, declined by 30 percent. Subsequent research revealed that 30 percent is the average sales loss for existing grocers whenever a dollar store enters a market. (*Institute for Local Self-Reliance*, 12/6/18)

**Automation** – The realities of food retailing, whether by grocers or restaurants, are pushing enterprises to install more and more

technology to complete more and more of their business processes, from taking orders to bagging and delivery. Consider these two examples, one from grocery stores and one from restaurants:

◆ In China, Alibaba operates 35 Hema automated grocery stores, which blend online ordering, automated fulfillment and automated checkout. Bingo Box and JD, also in China, have created completely automated convenience stores. At Bingo Box, for example, customers use an app to scan a code, which unlocks the store's door. Once inside, they use their phones to scan items they want to purchase, and pay through their wireless connection. When the purchase is completed, the payment system unlocks the door and lets the customer leave. (*New York Times*, 4/2/18)

◆ CaliBurger, a California hamburger restaurant, allows customers to order through an artificial-intelligence-enabled kiosk that uses facial recognition software to connect to credit card information and past orders; watch Flippy, a robot cook that can make 150 patties per hour, fix the burger; and then pay with facial recognition software validating their identity and payment method. No phone or credit card is ever used in the entire process. "We're getting away from having to look at our phones to do stuff," asserts Cali chief executive John Miller. (*Pymnts*, 12/7/17)

Automated processes can save money and increase business. For instance, Zume, a mostly automated pizza parlor in Mountain View (CA), spends only 10 percent of its budget on personnel, down from a typical restaurant's personnel costs of 25 percent. Moreover, Starbucks has noted that customers who order with their smartphones return to their stores more frequently than those who order in the store. (*Atlantic*, 1/19; *Spoon*, 1/24/18)

Automated processes, while novel and cost-saving, can go too far and can miss a critical point: customer service.

◆ The robot Fabio, which was installed in a European supermarket to assist customers in their routing to purchase foods, was retired after customers complained about the lack of human responses to their questions. (*Pymnts*, 1/27/18)

◆ A survey of shoppers ranked Wegmans grocery store, a \$9.2 billion chain in the northeastern U.S., the best place to shop for the third year in a row. The store's sales-per-square-

As of now, the various dollar stores combined sell more groceries than does Whole Foods.

foot figure is higher than that of any other grocery store except Whole Foods, although when Wegmans competes directly with Whole Foods, Amazon's grocer loses roughly 20 percent of its business. Wegmans has no or very little automation, keeps employees happy (creating hardly any turnover) and focuses more on customer service than efficiency. (*Bloomberg BusinessWeek*, 4/15/19)

## Consumers, the Final Voice

Consumers have considerable control over what happens in the food industry. As we have noted over the past decade, individuals are passing through a period of change in how they value products and services, how they behave in a digitized marketplace and where they prefer to spend their money. Their shifts in interests and preferences are accelerating the food industry's restructuring (see [IF 3820](#)).



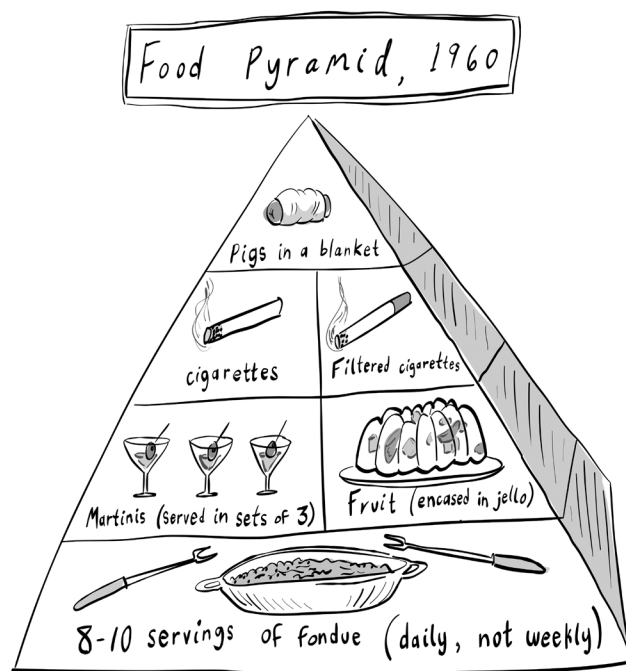
'Would you like a hand unwrapping your shopping?'

Over the past decade, American men added two pounds to their average weight, while women added six pounds. Of the American diet, roughly 58 percent of all calories consumed come from ultra-processed food, with the UK just slightly lower, at 50 percent. A common ingredient in highly processed foods is vegetable oil, including soybean oil, which have added more calories

to such foods than any other product, including sugar. (*Dallas Morning News*, 12/20/18; *Guardian Weekly*, 3/22/19)

A 2015 study published in *Lancet* listed the countries with the ten worst diets in the world, with the U.S. fourth from the bottom.

Researchers at the National Institutes of Health recently completed a study that divided adult male and female participants into two groups, one eating ultra-processed foods and the other eating minimally processed foods, such as nuts, fruits, vegetables. What they learned was that those eating highly processed foods simply consumed more food, actually adding, on average, 500 more calories per day. As a result, they gained two pounds in the study's two weeks. Those on the minimally processed diet lost two pounds. A 2015 study published in *Lancet* listed the countries with the ten worst diets in the world, with the U.S. fourth from the bottom. (*The Week*, 6/14/19; *Guardian Weekly*, 3/22/19)



**Healthy & Smart Eating** – As with grocery and restaurant chains and as with farming, consumer tastes and preferences might be starting to shift, and institutions are affecting the way individuals are changing their preferences.

◆ In a dietary program for U.S. preschool students who received food vouchers from the

Women, Infants and Children (WIC) nutritional program, researchers lowered the percent of obesity among participants from 16 percent to 14 percent by changing what they ate, including eating more fresh fruits and vegetables and decreasing the amount of meat consumed. A similar program undertaken by the city of Amsterdam between 2012 and 2015 lowered the percentage of children who were overweight or obese by 12 percent. (*Atlanta Journal-Constitution*, 6/20/19; *Guardian Weekly*, 3/22/19)

◆ The New York public school system, the largest in the country, will install “meatless Mondays” on school lunch schedules starting this fall. Meanwhile, smaller schools, such as Muse School in Calabasas (CA), Heart Montessori in Cincinnati, the Scandinavian School of Jersey City and Our Beginning, a daycare center in Seattle, have gone past vegetarian meals and have started serving only vegan meals. The reasons for making the changes, according to participants, was to provide more healthful foods, both in terms of the individuals eating them and in terms of the environment producing them. (*CNN*, 3/13/19; *New York Times*, 3/3/19)

◆ Since 2013, sales of nondairy “milk” products, which, again, is “healthier,” especially for those who are lactose intolerant, increased by 52 percent in the U.S., reaching \$2.3 billion and forcing down the price of milk so far that farmers in Wisconsin, New York and elsewhere have been dumping excess. Such excess production because of shifting consumer preferences has started to cause financial troubles for dairy farmers. For instance, five years ago, LaCrosse County (WI) had 96 dairy herds; today, the county has 60. (*Wall Street Journal*, 12/20/18; *Guardian Weekly*, 2/1/19; *New York Times*, 6/23/19)

The latest evidence of shifting consumer tastes surfaced with the launch of another food iteration: a plant-based hamburger. Beyond Meat, Impossible Foods and several other food producers have launched non-meat burgers. While vegetarian burgers have been around for years, more and more consumers claim that these new plant-based burgers approximate a beef taste better than earlier products. In a relatively brief period of time, Impossible Burgers were selling at 5,000 restaurants and 38,000 grocery stores...and that was before inking a deal with Burger King to sell the vegetable burger at the burger outlet. Even professional

athletes, especially those in the NBA, were switching to plant-based “meat” as a way to keep body fat low and add energy support. Soon, grocery stores were claiming that they were running out of these new non-meat burgers. (*Supermarket News*, 6/18/19; *The Week*, 5/10/19; *CNN*, 4/30/19)

Noticing a looming shift in consumer preferences, companies that focused on highly processed foods have taken action. Tyson Foods, a mainstay producer of meat, mostly poultry, said it would have a non-meat burger on the market in the near future. Nestlé USA launched a vegan burger. Hard Rock Café entered into an agreement with Moving Mountains Foods, which has been dubbed the Impossible Burger of Europe, to provide a burger to its clientele, thereby joining Applebee’s, Harvester, Nikki Beach and other European purveyors who were already serving the Moving Mountains non-meat burger. (*Verge*, 4/1/19; *Supermarket News*, 6/18/19)

The argument in support of plant-based meats as well as alternatives to meat has recently been overlaid with a moral tonality: it’s good for the troubled environment.

## Food, Environment and Ethics

Beef production and farming in general find themselves in the middle of discussions about global warming, either because they are being victimized by it or because they are contributing to it. As victims, farmers must deal with unusually harsh rains that flood their fields (and extreme droughts elsewhere). As of June, for example, just 92 percent of planned acreage for corn production was planted, the lowest percentage in 40 years. Midwestern fields still have standing water from rainfall over the past year, which, through April, the National Oceanic and Atmospheric Administration claimed, was the wettest year on record. (*Atlanta Journal-Constitution*, 6/19/19)

Beef ranchers, meanwhile, face charges of making global warming worse. Producing a pound of beef protein using Western industrialized methods requires as much as 25 times more water and 20 times more fossil fuels than producing a pound of plant-based protein. One analysis revealed that by substituting just one vegetarian burger for one beef burger each year, a consumer would save several hundred gallons of water. Beef production creates seven times as many greenhouse

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gases per unit of protein as does chicken or pork production and 20 times more greenhouse gases than are generated by growing peas and lentils for protein. Cows release large amounts of methane gas, a greenhouse gas that is 30 times more potent than carbon dioxide. Even as efficient as U.S. beef ranches are, they still consume 40 percent of U.S. agricultural land, while producing only three percent of the country's calories. (*MIT Technology Review*, 2/19; *Pymnts*, 1/22/19; *The Week*, 5/10/19)

Such environmental perspectives on food production and consumption have found their way to the agriculture and grocery sectors of the food industry.

◆ The Carbon Cowboy, Dan O'Brien has a 9,000-acre ranch in South Dakota, on which he now raises only bison. He sold his cattle and went to the more environmentally friendly bison. "We can't just work on the symptoms of climate change," O'Brien insists. "We're gonna have to just admit the polar bear is toast. He's on his way out. All those streams in California, Oregon and Washington – they're not gonna have salmon in them. That's just the way it is. But what we can do is work on the cause of global warming. That brings us to agriculture, and that's why we're here." (*Mother Jones*, 7/19)

◆ A Brooklyn grocery store called Precycle, where shoppers can buy fruits and vegetables, pastas and grains, flours and legumes and oils and vinegars, offers all its goods without packaging. Meanwhile, ZERO market in Colorado and Fillgood.co in California operate the same way. Other companies, such as Nestlé, Häagen-Dazs and Procter & Gamble, are taking steps to reduce their packaging waste. (*Christian Science Monitor*, 5/6/19)

These are examples of global warming and waste – two environmental issues – encroaching on the food industry. But the road is long in this area. Greenpeace

completed a ranking of grocery stores on their efforts to reduce waste, specifically plastic waste. Not one chain grocery store passed the test, with Aldi scoring the industry's highest (best) score against all competitors with a failing mark of 34.6 of 100. Meanwhile, on the meat front, the medical journal *Lancet* recently published a study that concluded that red-meat consumption would need to be reduced by 50 percent worldwide, matched with a doubling of the intake of nuts, fruits, vegetables and legumes, "to place [food] consumption within the boundaries of the planet."

More specifically, North Americans would need to cut meat eating by 84 percent and increase by six times their eating of beans and lentils. (*Guardian Weekly*, 2/1/19)

That last item touches another arena outside the food industry that is pushing certain kinds of food: medicine. Medical researchers have discovered that mixing compounds from carrots and green tea

halted advancing symptoms of Alzheimer's. Meanwhile, epidemiological studies have revealed that eating a plant-based diet is neurologically protective, keeping the aging

brain youthful. And more and more doctors are treating food as medicine, handing out recipes and meal menus as prescriptions, ordering fresh food from local farmers for hospitals, and in general making nutrition a greater part of healthcare. And it is having an effect. For instance, this past February, Blue Cross Blue Shield of Massachusetts started covering tailored meals for its members suffering from congestive heart failure who cannot afford low-fat, low-sodium meals. A new enterprise,

Fresh Food Farmacy, has come into existence solely to provide meals that are in accordance with doctors' prescriptions. (*Science Focus*, 4/19; *Psychology Today*, 5/19; *Time*, 3/4/19)

PERSONALLY I WON'T BE CONVINCED  
ABOUT CLIMATE CHANGE UNTIL I SEE  
THE EVIDENCE!



Medical researchers  
have discovered that  
mixing compounds  
from carrots and  
green tea halted  
advancing symptoms of  
Alzheimer's.



*"You've been fooling around with alternative medicines, haven't you?"*

## And So...

Damages to farming from a trade war and extreme weather get plenty of media attention, as do grocery stores and restaurants competing head-to-head and consumers sampling non-meat sources. While those items capture headlines, the deeper reality is that the food industry, from farming to eating, is undergoing a restructuring, changing how it operates, what it produces,

who sells what to whom, what individuals prefer to eat, how they want to access food and where they want to eat.

This is a complex set of changes that are triggering volatility in production, distribution and consumption in terms of what is needed and how much it will cost. Such new conditions are putting pressure on banks as well as the farmers they lend to, on food wholesalers and suppliers as well as grocers, and on restaurants that must now deal with consumers whose tastes are shifting as are their perspectives about what to eat and how much to pay.

One is tempted to say that the behemoths in the marketplace will eventually push aside would-be challengers. Yet more and more ranchers are shifting to other sources of income, from changing their herds from cattle to bison or changing from cattle-raising to a focus on new product lines, such as wind power, water rights and natural-gas production. Also, Wegmans grocery stores, with their focus on human interaction and their steady success – actually stealing market share from Whole Foods – have caught several competitors by surprise. And finally, consumers ordering delivery from white tablecloth restaurants, dining in grocery stores and liking (so far) their non-meat burgers have yet to settle into a pattern of how they want to engage the food industry. Those changes, plus the advancing call for environmentally friendly farming and dining, suggests that society is, indeed, Rethinking Food.



*"I'm tired of food."*

## Some of our previous looks at this topic:

- IF 4003** Less Of This And More Of That: Individuals Move Away From Consumerism And Toward Control, 2/27/19
- IF 4002** Larger Responsibilities: Characteristics Of Effectiveness In A New Leadership Model, 2/14/19
- IF 3914** Wave After Wave Of Change: Legacy Retailers Play Catch Up With Online Innovators...for Now, 8/6/18
- IF 3909** To Have Or Have Not: Legacy-Liability Companies And Non-Legacy-Liability Companies Face The New Economy, 6/13/18
- inThought 10/22/18** The Disorienting Environment: A Missing Grand Narrative, The Greater Restructuring And A Rethinking Of Nearly Everything
- inThought 3/8/18** The Attention-Industrial Complex And Its Discontents: Capabilities Of And Challenges For Those Seeking To Grab Others' Attention
- IF 3820** On The Road To A Better Life: Movement From A Focus On Rising Standards Of Living To Higher Standards For Life, 10/11/17
- inF 1201** Restructuring The Grocery Business, 4/10/17
- inF 1106** Ubiquitous Bots: Smart Bots, Dumb Bots And The Battle For Consumer Time, 5/18/16