

ESG INVESTING

Health & Wellness Nutrition

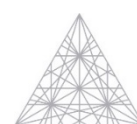
*Understanding opportunities for better nutrition
and other key ESG issues in food*



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Health & Wellness

In investing, the unending search for information mispriced by or, altogether missing from, the market can differentiate successful investors. Investors are continuously trying to understand changing dynamics and the effect of externalities on businesses. At GAMCO Asset Management, we view Environmental, Social and Governance (ESG) investing as a framework that encompasses a more holistic approach, which includes and considers additional material information that can have long term implications on a company's economic viability. It is important that investors consider such risks as we believe it provides insight into both risk and opportunity within an industry.

For some traditional investors, it may be difficult to think of ESG beyond a feel good investing trend. However, ignoring ESG issues may have financial consequence. In doing so, important issues are often overlooked which may be attributable with investors' tendency toward "short-termism." However, as long-term investors who perform deep industry research and examine industry fundamentals to understand both short and long-term dynamics, GAMCO believes that ESG issues support active examination of additional factors material to a company's business and sustainability. Certainly, some factors are harder to evaluate than others. Nevertheless, just as our world has shifted in a myriad of ways, it makes sense that the world of investing evolves to consider important sustainable issues.

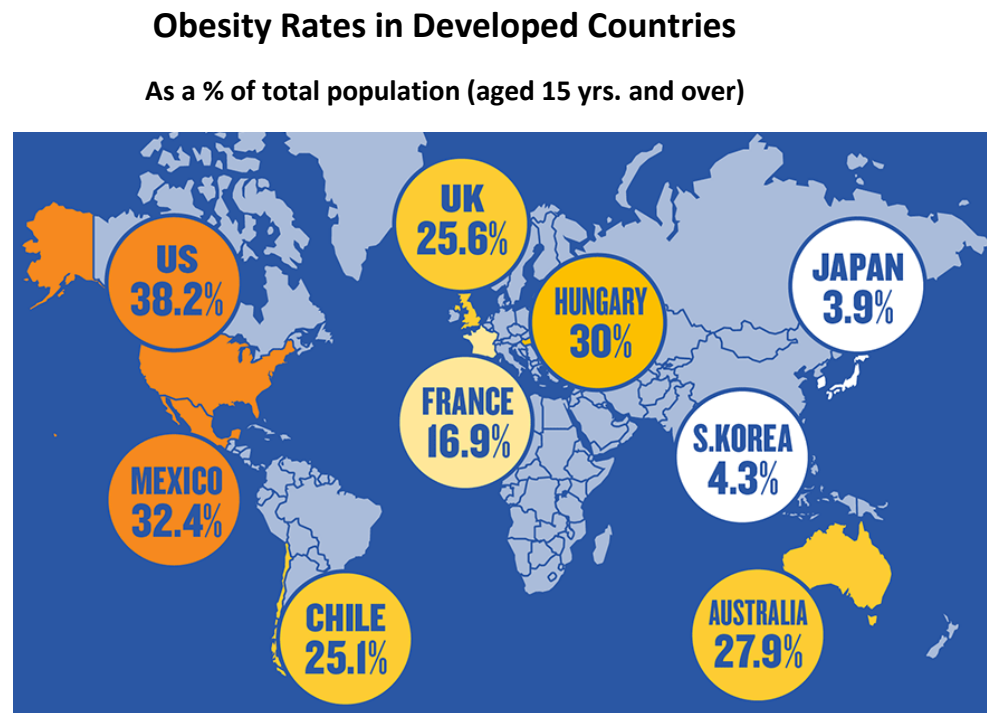
Let us look at health & wellness in nutrition as well as ESG issues related to food.

Obesity Trends – the U.S. Winner's Curse

Obesity is defined as abnormal or excessive fat that presents a risk to one's health. A person with a body mass index (BMI) equal to or more than 25, is considered overweight. A person with a BMI of greater than 30 is generally considered obese. Medical studies suggest that being overweight is a major risk factor for a number of chronic diseases, including diabetes, cardiovascular diseases and cancer. For decades, obesity was more correlated and thought to be a problem mainly in developed countries. However, it has been rising in low and middle income countries, according to the World Health Organization (WHO). It also is increasing noticeably in urban environments. The World Health Organization estimates that worldwide obesity nearly tripled since 1975 to nearly 650 million adults (18 yrs. and older) in 2016. They also estimate that an additional 41 million children under the age of five are already overweight or obese.

While the U.S. holds many records around the world, overall health is not one of them. According to a 2017 report by the Organization for Economic Cooperation & Development (OECD), the U.S. has the highest obesity rate (ages 15 and older) in the world, now at 38.2% of the total U.S. population shown in Figure 1. There has been a remarkable increase in the U.S. obesity rate and this is expected to continue. In fact, it is predicted that obesity will continue to rise in the U.S. and by 2030 obesity will reach 47% of the population. The implications of obesity on medical costs, life expectancy, labor productivity and society as a whole will continue to be significant.

Figure 1.



Source: OECD's Obesity Update, 2017 Report

However, it is not all bad news for Americans. As education and information has surfaced about how diet influences obesity, food consumption patterns have slowly begun to change. Findings from surveys show that US consumers understand the link between food and desired health outcomes (foodinsight.org; 2018 Food & Health Survey by the International Food Information Council Foundation). In addition, while taste, price and familiarity remain important, the majority of consumers now show a preference for healthier foods with no artificial ingredients. This is important. Recently in the NMI 2019 Health & Wellness Consumer Tracker Study, roughly 60% of U.S. General Population now identifies with a commitment to a healthy lifestyle while another 23% are “wannabe healthy.” While aspiration and identifying with a commitment do not automatically translate into changed behavior, it does suggest the majority of the U.S. population now understands the importance of maintaining healthy body weight.

This commitment drives behaviors, attitudes, and awareness that affect consumers’ diet, nutrition, and exercise, including their purchasing patterns. We have already seen this shift to natural, healthier and organic foods and it is noticeable. Within food and diet, there are several top trends driving change. These are consumers’ increasing demand for transparency, plant based foods as well, as overall health & wellness. It is all part of the “better for you” mantra and include, but are not limited to, issues related to sugar, red meat, antibiotics and plant protein within the food we consume.

Our early research in 2011 around Health & Wellness related to increasing yogurt consumption identified certain companies such as **Danone** and **General Mills** that were positioning toward healthier nutrition

products. As investors, we need to understand changing externalities to anticipate where investment opportunities emerge. We saw then that a shift to healthier, protein rich products were turning yogurt with its probiotic benefits into a nutritious snack category. Fundamentally recognizing and understanding the dynamic of such shifts early also helps identify possible strategic acquisitions within the food industry.

Sugar

While sugar may not be inherently bad (depending upon the type), consuming too much sugar over long periods can have detrimental effects on one's health as it affects the balance of hormones within the human body. Sugar consumption increases glucose levels in the bloodstream, which then causes the pancreas to release insulin. High insulin levels trigger the body to store more fat. Moreover, insulin influences the body's ability to create another hormone, leptin, which naturally suppresses the appetite, thereby promoting overeating. World Health Organization research shows that a heavy diet with a lot of added sugar is positively correlated with heart disease, type 2 diabetes, poor dental hygiene, high blood pressure, higher cholesterol and obesity. Sugar in fact, provides little to no beneficial nutrients, while being intensely addictive.

According to the American Heart Association, the average person should not regularly exceed 6-9 teaspoons of added sugar each day (6 teaspoons for women; 9 teaspoons for men). Unfortunately, the average American adult consumes around 17 teaspoons of added sugar each day. Even children consume on average 15 teaspoons of added sugar each day. According to the World Atlas, the U.S. has one of the highest average sugar consumptions per adult per day in the world shown in Figure 2.

Figure 2.

Top Sugar Loving Nations In The World

Rank	Country	Average Individual Sugar Consumption (in gms)
1	United States	126.40
2	Germany	102.90
3	Netherlands	102.50
4	Ireland	96.70
5	Australia	95.60
6	Belgium	95.00
7	United Kingdom	93.20
8	Mexico	92.50
9	Finland	91.50
10	Canada	89.10

Source: World Atlas, March 2019

Not surprisingly, the long-term consequence of consuming too much sugar contributes to high obesity and diabetes rates. In fact, the World Health Organization published its first guidance on daily sugar intake in 2015 in response to this concern. Despite recognition of individual responsibility, it is estimated that over 50% of the additional 300 calories that Americans consume versus 10 years ago come from sugar-sweetened beverages. As previously mentioned, this sugar driven obesity is a concern for all of society because of the impact on productivity and medical costs. To combat this implied social “cost” of sugary beverages, certain municipalities such as Berkeley and Philadelphia passed a tax on sugary drinks in 2014 and 2016, respectively. Other cities with a similar sugar tax on beverages now include: San Francisco & Oakland, CA, Boulder, CO, Portland, OR, Seattle, WA and Cook County, IL. Will this list grow? Will added sugar become the next tobacco or an Achilles heel for food & beverage companies? Which companies are prepared?

Nestle is a Swiss based multinational food and drink company, with 2,000 brands which include Nescafe, KitKat, Cheerios, Poland Spring, Purina, and Dreyers, among others. Since the establishment of its first Policy on Sugars in 2007, the company has committed to significantly reduce the amount of sugars in many Nestle products. Between 2000 and 2013, Nestle reduced the amount of table sugar in its products by 32% with real focus on children’s foods. Their stated policy goal is to reduce added sugars by an average of at least 5% by 2020.

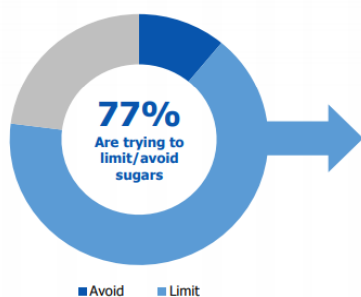
Irrespective of whether one thinks government should be passing laws to safeguard consumer choices, it is clear that this growing awareness has slowly affected consumer behavior and purchasing. Figure 3 reflects some of this action to limit sugar intake.

Figure 3.

Consumers Take Multiple Actions to Limit Sugar

When limiting/avoiding sugar, 60 percent drink water instead of caloric beverages

Limiting/Avoiding Sugars in Diet



Actions Taken to Limit/Avoid Sugars (Of those limiting/avoiding sugars)



*Abridged response text

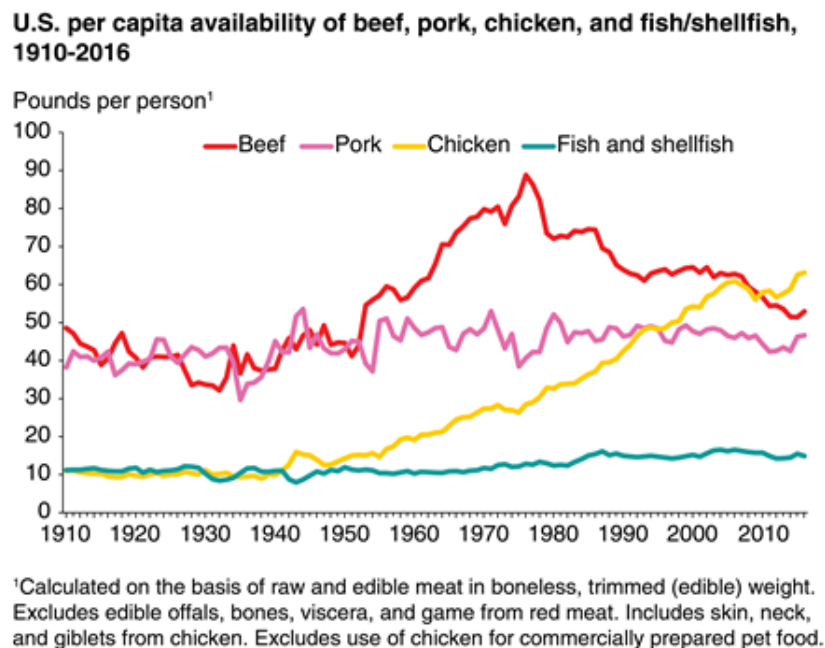
Source: International Food Information Council Foundation “2018 Food & Health Survey”

Consumer-heightened awareness about sugar, revised nutritional labelling around added sugars, and expanding regulations or sugar taxes, have implications on food and beverage companies. Investors need to understand which companies are adapting to these changing externalities. Those that can stay ahead and adapt will have more sustainable businesses long term.

Red Meat

Meat has long been associated with protein consumption and is deemed an important part of diet and nutrition. Protein is essential because it builds and repairs muscles, organs, bones, skin and hair. Since the human body cannot store protein, it has to come from one's diet. Not surprisingly, meat is the primary source of protein in the developed world, including the U.S. However in the 1950's research by the American Heart Association led to a recommendation that too much red meat consumption could lead to cardiovascular disease due to fat and cholesterol. Concern around over consumption of red meat in the U.S. was the catalyst for change in behavior. U.S consumption of red meat has been steadily declining since the 1970s. Consumption of red meat per capita declined 26% between 1971 and 2016 as consumers become more educated and aware of the health issues caused by cardiovascular disease and changed their behavior of consumption. The result has been a shift in demand for other types of meat. While demand for poultry such as chicken has increased, more recently it has evolved into development and growth of alternative proteins including a focus on plant-based proteins. The recent surging popularity of plant-based burgers like Beyond Burger or Impossible Burger suggest an inflection uptake. Later in this report we discuss this evolution in demand for plant-based products that may continue to reduce the demand for meat and red meat in particular. Figure 4 shows this change in demand.

Figure 4.



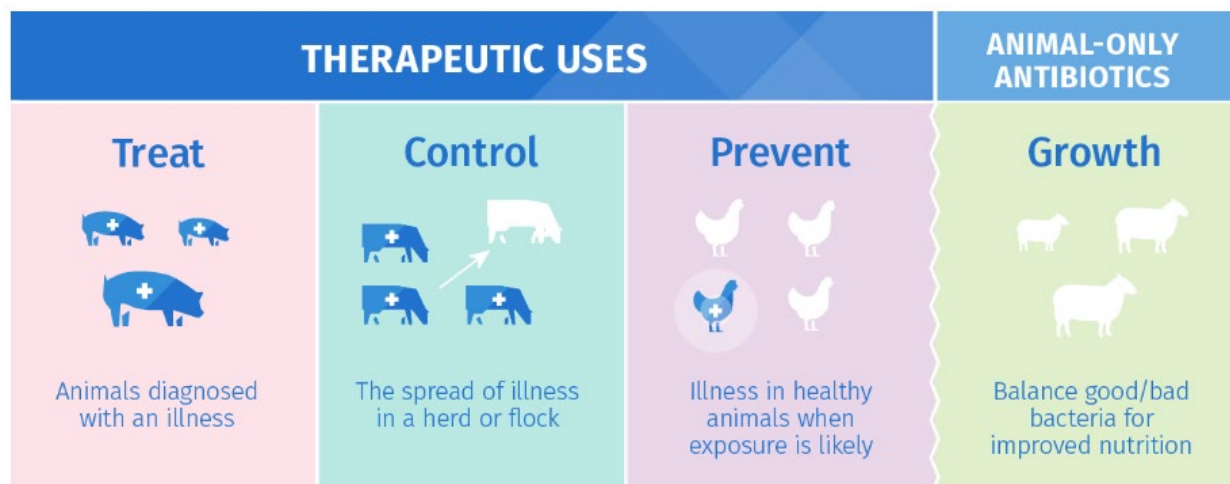
Source: USDA Economic Research Service, Food Availability Data

Antibiotics in Livestock

Another dynamic affecting consumption patterns is the pronounced use of antibiotics that has become a growing concern for consumers. Roughly 20% of livestock around the world is lost to disease. Due to this, antibiotics have been given to farm animals including cows, pigs and poultry since the 1940s to treat, control, and prevent disease. As the population grows to 9.7 billion people by 2050, and more protein is needed to feed the world, protecting the meat supply is critically important. It is a complex challenge that intersects with the world's demand for meat, milk, eggs, animal health, and sustainability. According to the Center for Disease Control and Prevention (CDC), there is and has been, supportive research for the responsible use of antibiotics in food animals. Both the FDA and US Department of Agriculture (USDA) oversee improved antibiotic use in veterinary medicine and agriculture to safeguard consumers. However, antibiotics have also been added to animal feed to accelerate livestock growth, which is a much more controversial practice. Growth use is deemed a less appropriate antibiotic use according to the CDC. Consumer groups have increasingly questioned how their food is grown, and lobbied for increased transparency and disclosure, so that they can understand which companies are using antibiotics and in what manner.

Therefore, on the one hand, there is need to increase the supply of animal protein to feed the world's growing population, but on the other hand, there is legitimate concern about the side effects of antibiotics on humans as these substances increase within food chain supplies. Interestingly, in 2011 already 80% of all antibiotics sold in the U.S. were used on livestock, according to the Food & Drug Administration. Figure 5 shows the different use of antibiotics to be considered.

Figure 5.



Source: Elanco, a company that makes antibiotics for fish farmers, cattle, dairy cows, poultry and pigs

In reality, consumer concerns over indirect consumption of antibiotics in the food supply have been growing for years. In 2017, the World Health Organization recommended that farmers and the food industry stop using antibiotics routinely to promote growth and prevent disease in healthy farm animals. The USDA and FDA have taken action to limit the use of cephalosporin antibiotics in animals raised for food.

What we have seen in the industry, is food companies and restaurants using “no antibiotics” labeling to sell into consumer concerns. While it is good to enable consumers to choose no antibiotics products, labelling can be confusing. Some version of no antibiotics claims means there are no antibiotics given for growth purposes, whereas others mean no antibiotics ever. Fast food restaurants such as McDonald’s, Wendy’s and Burger King, among others, have added policies for clarification. For example, some apply to chicken only, others apply to all meat. Regardless, consumers need to examine labels carefully while *investors* need to understand these dynamics in order to identify which companies are adapting to such changing externalities related to the evolving focus in health & wellness nutrition. One Canadian company, **Maple Leaf Foods**, has become a leader of the Raised Without Antibiotics (RWA) meat segment. They began transitioning their Maple Leaf Prime brand to 100% RWA and have eliminated artificial flavors, colors and trans fats from virtually all prepared meats.

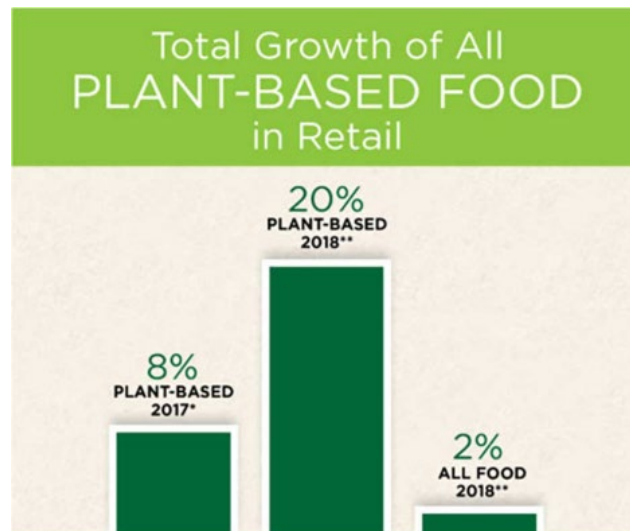
Plant Based Proteins

While the importance of protein in a diet was discussed earlier, the type of protein one consumes is worth examining. Although meat protein is well recognized, alternative and plant based proteins are increasingly becoming popular. The main difference between plant and animal protein involves their amino acid content which is what protein is broken down into within the human body. There are nine essential amino acids. Some animal proteins are complete sources of protein while most plant proteins are incomplete. This means they are missing at least one essential amino acid. However, a few plant-based foods are complete sources of protein. Plant based foods rich in protein include: grains, lentils, nuts, beans, hemp, peas, rice, soy, legumes and certain fruits (avocados). Plant protein does not contain saturated fat or high levels of cholesterol, compared to animal protein. Moreover plant based foods contain fiber which is important to digestive systems. Lastly, with concern about the carbon footprint and water needed to raise livestock, plant based protein alternatives are environmentally more efficient.

Consequently, the benefit of consuming plant-based protein compared to meat based protein make it an important solution to the growing need and demand for protein as the population soars to 9.7 billion by 2050. While less than 10% of the US population is strictly vegetarian or vegan, the number of consumers incorporating aspects of vegan eating into their lifestyle is rising. Consumers who are focused on adding fiber while lowering fat are accelerating demand for plant based proteins. Worldwide, retail sales of plant based meat alternatives were USD \$4.63 billion in 2018 and estimated to grow to USD \$6.43 billion by 2023. Some of this growth ties back to that NMI 2019 Health & Wellness Consumer Tracker Study indicating roughly 60% of the US General Population now identifies with commitment to a healthy lifestyle while another 23% are “wannabe healthy.”

Simultaneously and for the same reasons, consumption of dairy products has mirrored the decline in red meat while new non-dairy alternatives (i.e., almond, rice, soy, and coconut beverages) grow. This dairy alternative market was estimated to be USD \$17 billion in 2018 and grow to \$29.6 billion by 2023. Figure 6 shows the relative growth rates recently of plant based foods when compared to all foods.

Figure 6.



*52 weeks dollar sales ending August 2017; **52 weeks dollar sales ending June 2018. PBFA-commissioned data from Nielsen includes dollar sales for meat, egg and dairy alternatives.

Source: Plant Based Foods.org

Investors of all kinds need to understand the drivers of the lower demand for red meat and rising demand for plant based foods and beverages. How will this affect a company's strategy, sales or margins? What about the next five years? It has been important to not only recognize this long-term shift to more organic and natural foods or alternative proteins, but to also understand which companies are changing their product portfolios, or ingredient lists, to meet these demand shifts. All of the changing externalities - consumers shifting nutritional demands, concerns about the social "cost" from too much added sugar or antibiotics in foods and beverages - need to be considered. Consumers have become more educated about healthier eating and now pay more attention to nutritional labels. This is one of the reasons that foods with less sodium, sugar, artificial ingredients and natural organic fresh food exhibit a higher sales growth.

Simultaneously, investors need to examine the complex material ESG risks of the sector to also understand which companies are addressing the important issues. Within food, the ESG factors would certainly include Food Waste, Packaging, Carbon Intensity and Water use. Understanding which companies are managing the use of these resources in production, and limiting waste in their operations, can indicate a higher quality manufacturing process and a forward thinking management team.

ESG issues related to Food

Food Waste

It is estimated (Food and Agriculture Organization of the United Nations) that 30% of all food produced globally is either lost or wasted, which is estimated to be about 1.3 billion tons per year. This includes food wasted in manufacturing, delivery, restaurants and at grocery stores. When one thinks about what it takes to get food into a grocery store, this translates into an extraordinary amount of labor, water, energy, land and other natural resources that are also ultimately wasted. Additionally, over 90% of the food thrown away ends up in landfills or combustion facilities, according to the US Environmental Protection Agency (EPA). In fact, food is the largest stream of material in American trash, according to the EPA. The carbon footprint of home food waste is close to 3x greater than that of plastic waste, due to powerful methane gas that is produced by food when it ends up in a landfill. Methane gas is also more harmful than carbon dioxide to the environment.

Somewhat paradoxically, while there is tremendous food wasted, world hunger today is on the rise. The UN estimates that over 820 million people worldwide go hungry. This very fact magnifies the impact of food waste. Collectively working to reduce food waste might lead to more efficient land and water use, materially improve the environment with less GHG, and have a significant social benefit by reducing hunger.

Companies have begun to prioritize this important issue. *The Food Waste Reduction Alliance*, formed in 2011, is a cross industry association in the U.S. of the Grocery Manufacturers Association, the Food Marketing Institute and the National Restaurant Association. It includes 30 companies that are committed to finding solutions to address some of the root causes of food waste within their operations and donate or recycle unavoidable food waste. Companies include: **Conagra, Del Monte, General Mills, Kellogg's, Weis** and **Yum**, among many others.

Packaging & Plastics of Food

Food packaging plays an important role in keeping any food supply safe. Ideally, it maintains freshness and enables food to travel short and long distances until it reaches a point of consumption. It is designed to preserve, reduce contaminants, market and inform consumers as well as meet various regulations. Food packaging materials typically used include glass, metals (aluminum & steel), paper, paperboards and plastics. With waste management playing an important role in any community, and new regulations around single use plastics emerging, there is growing pressure on food companies to make sure that packing is reduced, recyclable or reusable. Companies such as **Danone** are now moving toward a target of using 100% recyclable packaging as part of a zero waste goal. Recently, the company announced it will purchase 100% sustainable and upcycled PET (polyethylene terephthalate) plastic for its Evian water brand. Historically, an issue like packing, or use of plastic in packaging, was not a variable considered by investors. However, in 2018 when the EU adopted a Directive on Packaging and Packaging Waste and China enacted a ban on the import of most plastics, it brought global attention to an urgent need to improve packaging and plastics used in the food industry. This is a changing externality that matters.

Danone and other companies are creating a future where all of their packaging is made entirely from recycled or renewable materials. Danone's goal is that 100% of its packaging is recyclable, reusable or

compostable by 2025 and no plastic is sent to a landfill. Other big brands, including **Procter & Gamble**, **Unilever & PepsiCo** are revisiting the milkman model by testing product delivery with reusable, refillable metal containers in an effort to cut plastic pollution.

Water and Carbon Footprint in Food Production

Water use is a critical part of most food manufacturing processes. It affects cost and even availability of other key ingredients in a supply chain. As the population grows to 9.7 billion by 2050 and droughts hit various parts of the world, how a company manages its water use and monitors that use by its supply chain become more important. Interestingly even though it should be part of business planning, it is estimated that *only* 24% of companies in the MSCI All Country World Index currently manage water stress in their supply chain. Water Management and optimization programs have become more critical amidst the severe drought in the western region of the U.S., which supplies over 60% of the U.S. fruits & vegetables. It has been estimated that the average American diet requires more than 1000 gallons of water per day to produce the related food and beverages consumed. How is this possible? Consider the data table in Figure 7.

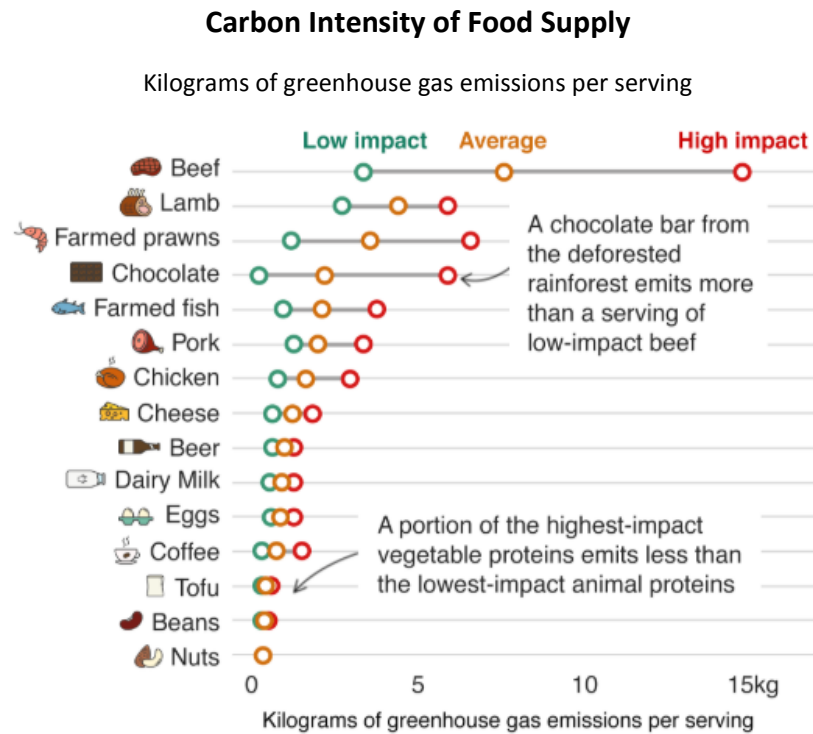
Figure 7.

Edible Item	Water Required to Produce
6 oz. Steak	674 gallons
1 lb. chicken	468 gallons
1 cup of milk	55 gallons
1 egg	52 gallons
1 apple	18 gallons
1 slice of bread	11 gallons
1 head of broccoli	5.4 gallons
1 almond	1.1 gallons

Source: National Geographic, Water Footprint Calculator

The carbon footprint story of food is certainly no different from that of water. It is shown in Figure 8. The more meat intensive the product, the higher the carbon footprint. Companies that are aware of these environmental costs and impacts are able to develop processes to reduce impact. Additionally finding ways to reduce or achieve “zero waste” adds to their efforts. Companies with management that pays attention to these issues are able to be forward thinking in terms of strategy and operations. This matters to companies as they work around changing externalities of an environment where natural resources are constrained due to accelerated population growth. Business sustainability is relevant to any investor that makes long-term investments in these companies.

Figure 8.



Source: Poore & Nemecek (2018), Science

Connecting the Dots – ESG in the Food Industry

Environmental, Social & Governance (ESG) investing is about recognizing the impact of environmental, social and governance factors in a company's business, thereby considering both risk and opportunity. Within food, it involves understanding how changing health & wellness dynamics in nutrition intersect with a need for reduced impact on the environment as the world's population surges to 9.7 billion. Long-term investors benefit from carefully understanding which industries and companies have the most impact, as well as which ones manage their resources better. Healthier products delivered in a more sustainable manner should support a healthier customer, ensuring the company's ability to grow long term. Thinking about nutrition, ingredient quality, alternative proteins, food waste, and packaging, as well as the water and carbon footprint of food, is imperative.

According to the Sustainability Accounting Standards Board (SASB) that guides investors on materiality of ESG issues by sector, the food & beverage sector is most financially impacted by the following issues:

Food & Beverage Sector - material ESG issues

	Agricultural Products	Agricultural Products	Alcoholic Beverages	Food Retail & Distributors	Meat, Poultry & Dairy	Non Alcoholic Beverages	Processed Foods	Restaurants
Environment	GHG Emissions	X		X	X	X		
	Energy Management	X	X	X	X	X	X	X
	Water & Wastewater Management	X	X		X	X	X	X
	Waste & Hazardous Materials			X				X
	Ecological Impact				X			
Social Capital	Data Security			X				
	Product Quality & Safety	X		X	X		X	X
	Customer Welfare			X	X	X	X	X
	Selling Practices & Labeling		X	X		X	X	
Human Capital	Labor Practices			X				X
	Employee Health & Safety	X			X			
Business Model & Innovation	Product Design & Lifecycle Management		X		X	X	X	
	Supply Chain Management	X	X	X	X	X	X	X
	Materials Sourcing & Efficiency	X	X		X	X	X	

Source: Sustainability Accounting Standards Board, Materiality Map™

Why GAMCO Asset Management & ESG?

GAMCO Asset Management has been involved in responsible investing since 1987. As a long-term, fundamental active investor focused on investing in industries where we have accumulated, compound knowledge, incorporating consideration of material ESG issues certainly provides us with additional insight to companies. However, we believe there is a lot of information in these areas that is still rapidly evolving. This necessitates both experience and active investment judgement.

July 2019

For more information on ESG investing:

Christina L. Alfandary (914) 921-5101, ESG & Sustainable Investments

Sources:

- 1) World Health Organization www.who.int Obesity; Guideline: Sugars intake for adults and children, World Health Organization 2015
- 2) Organization for Economic Co-Operation & Development, OECD's Obesity Update 2017 Report
- 3) Foodinsight.org; 2018 Food & Health Survey by the International Food Information Council Foundation
- 4) NMI 21st Annual Health & Wellness 2019 Consumer Tracker Study
- 5) *Health & Wellness-Convenience, Value Yogurt*, J. Gabelli, S. Donnelly, October 2011
- 6) *The Evidence of Saturated Fat and for Sugar related to Coronary Heart Disease*, J. DiNicolantonio, S. Lucan, J. O'Keefe, Nov. 2015
- 7) *Added Sugar intake and cardiovascular diseases mortality among US adults*, Q. Yang, Z. Zhang, EW Gregg, WD Flanders, R. Merritt, FB Hu, April 2014
- 8) American Heart Association www.heart.org
- 9) World Atlas, March 2019, Top Sugar Loving Nations in the World
- 10) 2013 Summary Report on Antimicrobials Sold or Distributed for Use in Food Producing Animals.
- 11) "Meat Substitutes Market" Global Forecast Markets & Markets
- 12) "Dairy Alternatives Market Global Forecast to 2023" Markets & Markets, Jan 2019
- 13) Grand View Research, US Dairy alternatives market size by product, 2014-2025
- 14) Plantbasedfoods.org
- 15) US Environmental Protection Agency

IMPORTANT DISCLOSURES

GAMCO ASSET MANAGEMENT INC. * ONE CORPORATE CENTER, RYE NY 10580

TEL (914) 921-5100 FAX (914) 921-5060

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As of June, 30, 2019, GAMCO and its affiliates own less than 1% of Danone, General Mills, Nestle, Conagra, Kellogg, Weis, Procter & Gamble, Unilever, PepsiCo and 1.4% of Maple Leaf Foods.

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