

Sustainable food strategy – An introduction

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1. Introduction

The food and agriculture sector is in the early stages of a far-reaching transition towards more sustainable food production and consumption. Growing environmental and resource pressures, changing consumer demands, technological innovation and ever-tightening regulatory interventions are disrupting existing depletive practices and unhealthy preferences.

This transformation is creating fast-growing insurgent companies and is changing the business models of incumbent firms, creating compelling investment opportunities for active investors.

The Impax Sustainable Food strategy is a long-only, all-cap equity investment strategy targeting the most innovative and responsibly managed leaders in sustainable food supply, resource efficiency and nutrition, with the aim of delivering long-term capital growth.

Specialists in the transition to a more sustainable economy

2. Drivers of disruption

The food and agriculture sector is both a cause of, and vulnerable to, environmental degradation. Pressures are intensifying, as growing populations and rising living standards drive increased consumption of resource-intensive foods. Awareness is rising however, and consumption patterns are changing rapidly as consumers shift towards healthier, more natural and more sustainably produced foods.

Evolving consumer demands

The rise of flexitarian diets – which involve less meat and more plant-based foods – has largely been driven by growing environmental, health and animal welfare concerns. Meat alternatives are growing rapidly, with sales of plant-based meats projected to expand by 25% a year over the next decade.¹ The segment's growth is projected to significantly outpace that in traditional meats, analogous to the disruption of the liquid milk category by the emergence of plant-based drinks.

Similarly, processing food tends to reduce its nutritional value while also increasing levels of salt, sugar and artificial preservatives. Consumers are becoming increasingly interested in the quality of the food they buy and a growing number are preferring a diet that is less processed and predominantly includes natural ingredients. For companies in this space, the slowdown in the consumption of branded processed food has had a significant impact.

Resource scarcity and food waste

The enormous volumes of food waste produced by our food system exacerbate the above impacts. Up to one-third of all food produced for human consumption is lost or wasted, at an economic cost of up to US\$1 trillion per year.² Awareness amongst consumers is growing and they are beginning to demand solutions.

Climate change and deforestation

Food production and agriculture can contribute to climate change through deforestation – which reduces the planet's natural carbon storage capacity – and through the sector's use of inputs including fossil fuels and fertilisers. Globally, livestock rearing – particularly of ruminants, whose digestive systems produce large volumes of methane – is responsible for 14.5% of anthropogenic greenhouse gas (GHG) emissions.³ Tropical deforestation is one of the biggest environmental issues related to agricultural production, contributing to around 8% of GHG emissions.⁴



Water scarcity is one of the most urgent food security issues facing many of the world's countries. Globally, 70% of fresh water is used for food production-related irrigation, exposing the sector to changing patterns of precipitation. Around 1.2 billion people, or almost one-fifth of the world's population, live in areas of physical water scarcity, and a further 500 million people are approaching this situation.⁵

Pollution and environmental degradation

Excessive use of chemical nutritional and crop protection inputs has negative ecological and human health impacts. Global use of pesticides has grown from 230 million tonnes in 1990 to 417 million tonnes in 2016, an 81% increase.⁶ Pesticides can destabilise ecosystems by altering the nutrient balance, reduce soil biodiversity and lead to declines in crop yields.⁷ Decaying nitrogen fertilisers produce GHGs, while run-off of nitrogen and phosphorus pollute groundwater and can lead to vast hypoxic 'dead zones' in lakes and coastal waters unfit for many species within these ecosystems.

Overuse of antibiotics – some 70% of antibiotics in the EU are used in animal farming – is contributing to an antibiotic resistance crisis that is already costing Europe €1.5 billion a year in healthcare costs and productivity losses.⁸

Tightening regulation

Across the range of environmental and social impacts, governments are responding with policies and measures designed to improve the efficiency of food and agriculture, reduce its environmental impacts and improve health outcomes.

The EU adopted regulations in May 2018 to ban the use of three of the most widely-used neonicotinoids, a type of pesticide.⁹ In 2018, the US government was ordered by a federal court to ban the extensively-used pesticide Chlorpyrifos due to concern over its effects on the brain and nervous system in humans.¹⁰

¹"UBS predicts plant-based meat sales could grow by more than 25% a year to \$85 billion by 2030," *Yusuk Khan, Business Insider*, 19 July 2019.

²Food and Agriculture Organisation of the United Nations (2014), *Food Wastage Footprint*. ³"The Meat Question, by the Numbers", Lisa Friedman, Kendra Pierre-Louis and Somini Sengupta, *The New York Times*, 25 January 2018. ⁴World Resources Institute (2018), "Tropical Forests and Climate Change: The Latest Science", Working paper. ⁵United Nations Department of Economic and Social Affairs (UNDESA) website. ⁶Food and Agriculture Organization of the United Nations, FAOSTAT database, Pesticides Use. ⁷Report of the Special Rapporteur on the right to food (A/HRC/34/48), ReliefWeb. ⁸FAIRR (2017), *Responding to resistance: FAIRR's engagement with the restaurant sector*. ⁹European Commission website, "Neonicotinoids". ¹⁰"EPA is ordered to ban farm pesticide chlorpyrifos", Gregory Wallace, CNN, 10 August 2018.

3. Opportunities

Impax has identified a global universe of companies that are helping to address the sustainability challenges facing the food and agriculture sector. This includes companies that are helping to reduce costs by improving efficiency, lowering the environmental impact of agriculture and food production, facilitating the provision of safe and nutritious food, and promoting animal welfare standards along the food value chain.

We look for companies active in Sustainable Food Markets that are:



Improving food safety

Recent incidents around adulterated foodstuffs – such as the 2008 baby milk scandal in China – and undeclared meat – for example the horse-meat scandal in Europe in 2013 – have led to increased demand for laboratory food testing services and technology, with a trebling in the number of tests over the last five years.

Promoting healthy and natural food

Changing consumer attitudes have led to growth in demand for healthy and natural food over recent years. The natural foods category – which includes better-for-you snacks such as fruit and nut bars and seaweed crisps – is growing globally at a compounded annual rate of 9%, gaining share from processed foods.¹¹ Large branded food manufacturers have responded to this by developing new products and investing in the reformulation of existing products. This commonly involves replacing artificial ingredients with natural ingredients, and removing those linked to harmful health effects, such as sugar, fat and salt.

We see particular opportunities for natural food ingredients manufacturers. Specific investment prospects include companies involved in natural ingredients, dietary and nutritional additives (such as probiotics), flavours, colours, emulsifiers, cultures and enzymes.

Reducing food waste

Numerous opportunities to reduce food waste exist across all parts of the food value chain.



Post-harvest technologies such as grain handling, grain conditioning and storage equipment can help to reduce or eliminate loss from weather, pests and disease. Extending the shelf-life of perishable foods can have a dramatic impact on reducing food waste. We believe companies producing natural preservatives such as lactic acid are a good example of this.

Using fewer and better inputs

A range of technologies and practices are being developed to reduce the inputs needed to produce food. One such example is a technology that uses sensors to detect weed species and apply sufficient herbicide to kill them, thereby reducing chemical use by 80-90%. This is becoming commercially viable and could be deployed rapidly. Similarly, drip irrigation can reduce water use by up to 60% while almost doubling yields.¹² Crop imagery and biomass measurement from drones and satellites is another important development as it can help farmers more accurately and efficiently apply fertilisers.

Better nutrition and animal care within the dairy industry can increase milk-to-feed ratios and reduce animal mortality which in turn can improve yields and reduce emissions from cattle. If well communicated, these outcomes may help retain consumers who would otherwise switch to lower impact alternatives.

Sustainable packaging

Efforts to reduce plastics pollution and the use of fossil feedstocks are encouraging a shift away from single-use plastics packaging to fibre-based alternatives, such as cardboard for fresh produce. Meanwhile, bioplastics such as polylactic acid can be derived from renewable resources including sugarcane and corn starch.

Reducing carbon emissions

The primary way of cutting GHG emissions from the food sector is to reduce the inputs used (see above), particularly those from nitrogen-based fertilisers. There are also emission reduction opportunities presented by companies producing plant-based meat and dairy alternatives which have inherently lower animal methane emissions.

¹¹Berenberg research, 'Ten Trends' report. ¹²"New design cuts costs, energy needs for drip irrigation, bringing the systems within reach for more farmers", Jennifer Chu, Massachusetts Institute of Technology, writing in Phys.org, 20 April 2017.

4. Investment approach

Impax's Sustainable Food universe

Impax has developed a proprietary classification system to identify companies that operate in the Sustainable Food Markets. The methodology, which encompasses seven sectors and 17 subsectors¹³, supports the analysts in quantifying and measuring sustainable food activities. Companies in the sustainable food universe must have a minimum of 20% of revenue, profit or invested capital from sustainable food activities, as defined by these 17 subsectors.

Impax aims to generate outperformance over the long-term by investing in the most attractive stocks identified by a research-intensive, bottom-up, stock-picking process. Portfolios are constructed from the highest conviction companies.

Impax's Sustainable Food strategy takes a "total value chain" approach to ensure broad, diversified exposure. Sectors such as food safety, distribution and value-added foods offer defensive options to balance more cyclically exposed sectors such as growers, agricultural inputs and sustainable packaging.

It is important to pay particular attention to the identification and management of ESG risks.

Some risks of particular concern to investors in the food and agriculture sector include reputational damage and

loss of contracts if linked to deforestation as well as operational and supply chain risks related to physical climate change.

Impax's integrated risk management tool involves analysis of:

- Governance structures: corporate oversight, accountability and strategic direction;
- Sustainability processes: identifying the most material environmental and social risks at the company level and analysing the policies, processes and incentives to manage them; and
- Company controversies: including past issues, performance and how the company has responded to problems.

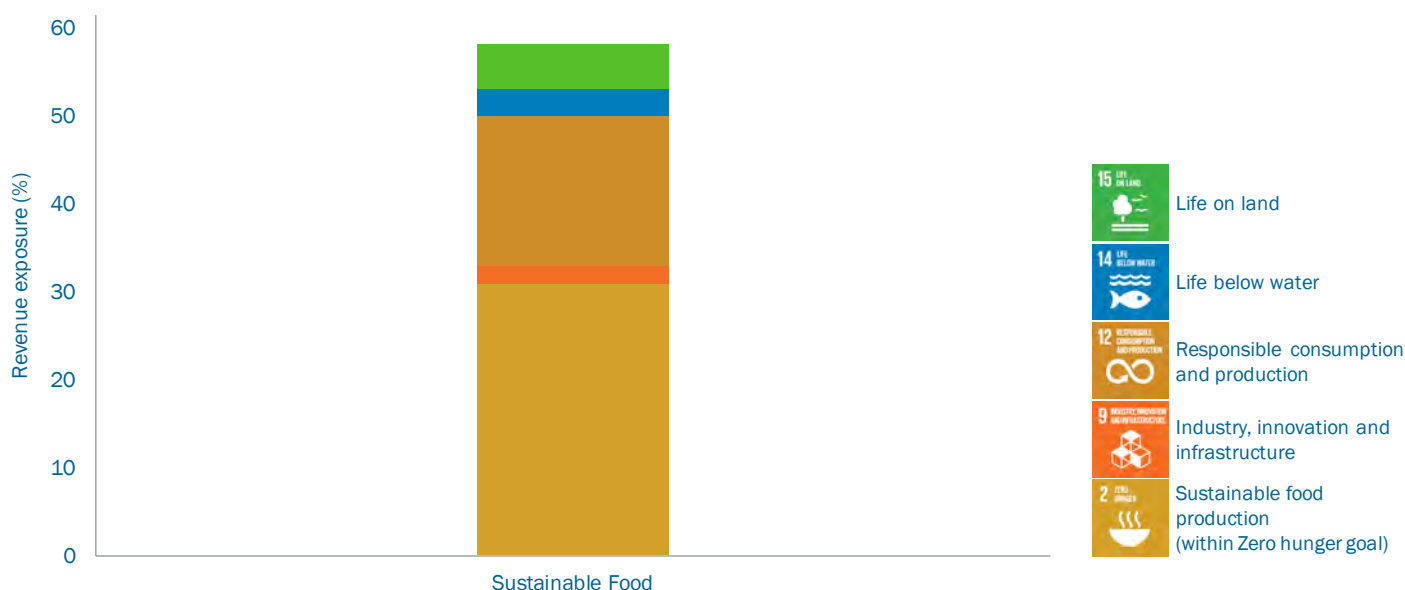
To manage these risks, companies need to demonstrate an approach that thoughtfully considers the nuanced complexities of each ecosystem when it comes to implementing policies on land use and biodiversity or when promoting reduction in agricultural land conversion. Regarding physical climate risk, companies' location-specific extreme climate event vulnerability is considered, and engagement with companies to understand climate risk management preparedness and practices is important.

Mapping to Sustainable Development Goals

In common with other thematic Impax investment strategies, Impax's Sustainable Food strategy aligns well with the UN Sustainable Development Goals (SDGs).

Almost one-third of portfolio revenues are aligned with SDG 2: Sustainable food production, with an additional 15% with SDG 12: Responsible consumption and production.¹⁴

Mapping the Impax Sustainable Food strategy to UN Sustainable Development Goals



¹³Each stock in the Sustainable Food universe is assigned a Sustainable Food sector and subsector classification, as well as a % exposure to the Sustainable Food themes, based on an internal methodology. There are 7 sectors: Growers & Inputs, Basic Foods & Ingredients, Technology & Logistics, Value Added Foods, Sustainable Packaging, Food Safety and Distribution and 17 subsectors that fall within this framework.

¹⁴Data as at 31 December 2019.

5. Conclusion

The transition of the food and agriculture sector away from a depletive economic model and towards one that is able to sustainably feed a growing global population is firmly underway. It is exposing certain activities in the sector to new disruptors, but it is also creating opportunities for well-positioned companies to outperform. In a fast-moving environment, Impax systematically reviews the materiality of those risks and opportunities.

In this context, the analysis behind the Sustainable Food strategy is a helpful framework for identifying companies likely to offer solutions to the sustainability challenges of the traditional food value chain. This framework further helps to avoid those companies being disrupted, resulting in an innovative universe of companies from which to compile a compelling investment portfolio.



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