

ANNEX 1

Transformation efforts in the food industry



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This annex provides examples of the types of transformation sprints that companies are engaged in across the food system.

Manufacturers

Given the environmental and health impacts of food production, major food manufacturers are shifting towards sustainable production. They are committing to making major progress towards achieving the 2030 Agenda and its SDGs.

For example, Nestlé published its net-zero road map in February 2021, including specific milestones towards making its operations have net-zero environmental impact by 2030. The organization quantified its global greenhouse gas emissions in 2018 and, based on these data, is accelerating its work on manufacturing, packaging, carbon-neutral brands, and investing in regenerative agriculture and nature-based solutions such as agroforestry and land restoration across the supply chain.^{[1][2]}

The world's largest brewer, Anheuser-Busch InBev, is championing four key principles: smart agriculture, water stewardship, circular packaging and climate action. Based on its 2020 annual report, the company expanded its existing water partnership with The Nature Conservancy (TNC) to include agricultural initiatives that address soil health, biodiversity and water stewardship across the agriculture supply chain, developing a framework for designing impactful soil health programmes. The company has also focused on sustainable product innovation. It has developed EverGrain, a sustainable ingredient company that is revolutionizing the use of saved barley grain from the brewing process to deliver highly nutritious, great tasting protein and fibre barley-based ingredients to the world. Ultimately, these ingredients will provide affordable, sustainable nutrition to people who are undernourished, and will reduce environmental impact by reusing barley grain that would have otherwise become waste during the brewing process. EverGrain was officially launched in January 2021.^[3]

Cargill is committed to using its global reach within the agriculture, food and nutrition sector to help achieve the United Nations 2030 Agenda and its SDGs.^[4] The company announced a new target to

reduce greenhouse gas emissions from its global supply chains by 30 per cent by 2030, measured per ton of product. In 2020, the company joined with the Iowa Soybean Association and Quantified Ventures to create the Soil and Water Outcomes Fund. Farmers receive \$30 to \$50 per acre for adopting practices such as planting cover crops, reducing tillage and optimizing nutrient management. These techniques have been shown to improve the quality of water, soil and air. In its first year, the programme enrolled 9,400 acres, which it aims to scale up to 100,000 acres in 2021.^[5] It also hopes to bring this type of programme to other parts of the world.^[5]

Giant food and beverage manufacturers are also launching more plant-based lines, such as Nestlé's Garden of Eatin' in Europe, Sweet Earth in the USA (since 2017) and Harvest Gourmet in Asia (since 2020).^{[6][7]}

As manufacturers, supermarkets and restaurants scramble to tap into the burgeoning vegan market and move into healthier plant-based foods with a lower environmental impact, Unilever bought the meat-substitute innovator The Vegetarian Butcher in 2018.^[8] These products are now sold in over 20,000 retail outlets in 30 different countries.^[10] In line with Unilever's Future Foods ambition, the company is also increasing plant-based alternatives from brands including Hellmann's, Magnum and Wall's.^[11] Moreover, Unilever is partnering with food-tech company ENOUGH to create zero-waste plant-based meat in 2021.^{[12][13]}

Food retailers

On the retailer end, there are significant opportunities to reduce food waste.

Based on the Slow Road to Zero report,^[14] mass grocery stores such as Kroger, Walmart and Ahold Delhaize are incorporating strategies to reduce food waste (including strategies to report volumes of food waste) and implementing forecasting and ordering tools to reduce food waste. All three supermarkets have also committed to achieving zero food waste by 2025. Other possible solutions include introducing legislation to reduce food waste in supermarkets.^[15] For instance, after the European Commission

proposed that member states develop national food waste prevention strategies, in 2016 France implemented a food law that bans supermarkets from throwing out edible food. This law has created many opportunities for businesses that help grocery stores better manage their stock and reduce food waste.^[16]

Food services

With the increase in environmental and health concerns, and to meet consumers' needs, plant-based products have been launching in major food service chains all over the world in the past two years.^[17] New plant-based foods targeting “flexitarians” provide alternative options of menu innovations while helping reduce the carbon footprints of food service operators.

Sharing on social media how a restaurant is sustainable – such as being a plant-rich, farm-to-table and/or organic restaurant –, sharing the sustainable initiatives the restaurant is taking, and using storytelling, ratings, feedback, polls and questionnaires to engage more with consumers can influence consumers to switch towards more sustainable consumption.^[18]

Abillion is a social media platform where consumers can search for, and post about, plant-based restaurants or cruelty-free products. By reviewing a plant-based dish from a restaurant or vegan product from a grocery store, the platform shares feedback with the seller for them to improve their product, and donates \$1 to them. Abillion partners work in animal conservation, dietary change, agriculture, public policy and education, and collaborate in raising awareness of plant-based eating and lifestyles, while supporting the market.

Aside from publicizing dishes and educating consumers, there are also potential solutions to tackle food waste in kitchens. For instance, **Guardians of Grub** provides resources for cooks to reduce food waste in kitchens and make their businesses more profitable. There are also technological solutions, such as smart kitchens that use artificial intelligence to tackle food waste. For instance, **Winnow Solutions** is a camera and scale that detects food waste, calculates it and quantifies its value. This machine raises co-workers' awareness of how much food waste is produced in the kitchen, and has a proven record of helping save food: Winnow Solutions has saved \$30 million worth of food per year from being thrown away.

Food labelling

The inclusion of nutrition facts on food labels was designed as a public health intervention to improve the dietary intake of consumers, and is already implemented on most packaged foods around the world. The traffic-light labelling system used in France, for example, is one of the most direct and informative examples of nutrition-fact labelling, showing the amount of fat, saturated fat, sugar and salt in a specific food item by using the familiar traffic-light signals to indicate high (red), medium (orange) and low (green) percentages for each of these components.

Using traffic-light labelling to enable consumers to compare environmental impacts across and within product categories could be further studied. For instance, a study was conducted on environmental impact that combined a food product's carbon, nitrogen and water footprints.^[19] Another study suggests that consumers underestimate the energy consumption and greenhouse gas emissions associated with the food system, while carbon-emission labelling on food could drive more environmentally sustainable food choices.^[20]

Many consumers have a positive attitude towards the use of carbon labels on food products and consider them to be useful for comparing the environmental credentials of different food products. In comparison to a default label, the use of easy-to-interpret but comprehensive environmental information labels increases the overall purchases of eco-friendly food products.^[21]

Based on these studies, innovative business opportunities in the food-labelling system are emerging, aimed at encouraging consumers' awareness of a product's environmental and climate impact. In Denmark, an informative and attractive environmental-impact food-labelling initiative was introduced, while major food brands are also starting to introduce carbon-emission labelling on their products.^[22]

Agricultural farming conditions and animal welfare have also been a hot topic among consumers in recent years, with some private initiatives exposing their clients to information on these issues. Parallel to this, the European Commission has started collecting data on previous experiences regarding animal welfare labelling.^[23]

Labelling is already supporting organic farming, an important sustainable agriculture practice that is growing steadily. Research has found that the absence of labelling information is a barrier to purchasing organic food. By improving labelling systems to include more actionable information – such as the health, environmental and societal benefits of products – consumers' perceived behavioural control can be increased to strengthen their intentions to purchase organic products.^[24]

Based on a global consumer market behaviour survey by V-Label, when buying vegan or vegetarian products, 91 per cent of respondents prefer products with a certificate such as V-Label. Also, 95 per cent consider themselves better informed when choosing vegan (or vegetarian) products thanks to V-Label. These results show that consumers are increasingly relying on clear and independent labelling to help them identify vegan and vegetarian options quickly, confidently and transparently.^[25]

According to the Innova Consumer Survey 2020, 60 per cent of consumers are interested in knowing more about where their food comes from.^[26] Expectations around what constitutes a “clean label” are increasingly broad, such as information on human and animal welfare, supply chain transparency, plant-powered nutrition and sustainable sourcing. Market research suggests that solutions include new packaging technologies and storytelling about a product's supply chain.^[27]

The provision of clear guidance from food businesses to consumers to help them better understand the meaning of food expiry dates, such as use-by and best-before dates, can help avoid confusion that can lead to products being disposed of before they need to, or being consumed when they are potentially unsafe. Similarly, clear guidance on how to store food products correctly, whether they are suitable for home freezing and how to safely defrost and consume food are all proven ways of helping consumers get the most from the food that they buy and waste less of it.

WRAP's Love Food Hate Waste campaign offers consumers scientifically based guidance on how to store food correctly, through its A to Z of food storage. Its work with the food industry on standardized food-labelling guidance has also helped reduce food waste in the home and improve clarity around when food is safe to donate to food redistribution charities.^[28]

In order to influence consumers and lead to more environmentally sustainable food choices, easy-to-understand carbon-emission and environmental-impact labelling systems need to be further studied and developed. Food businesses and industry associations may collaborate and develop guidelines and best practices focusing on food labelling, as it has a positive impact on influencing consumers' purchases.

Food innovations

Food innovations provide great opportunities to transform the food system. Although plant-based meat and plant-based milk have already achieved accelerated growth as a result of the COVID-19 pandemic, plant-based food markets and innovation opportunities vary by country. As such, national preferences should be taken into account. For example, China is a game-changing market in the transformation towards planet-friendly diets, as the country currently consumes 50 per cent of the world's pork and 50 per cent of the world's chicken eggs.^[29] Plant-based substitutes catering to local market conditions could therefore enjoy huge market potential. On the other hand, in the European Union, where the consumption of meat alternatives is already high, plant-based seafood, cheese, butter and desserts represent strong areas for growth.

While cultured meat is on its way to market, blended protein is having huge success in major meat-consuming countries such as China and the USA. Mixed-meat products contain both plant and animal protein, with plant protein replacing up to 70 per cent of meat in basic items such as dumplings, patties and sausages. **PERDUE**, a major chicken-, turkey-, and pork-producing company in the USA, is hoping to use its blended nuggets and patties to help people “who have an increased commitment to getting more plants and vegetables in their families' diets.”^[30]

Meanwhile in China, where meat consumption has been steadily increasing due to the economic boom, consumers' acceptance of artificial meat is gradually increasing. Florian Bark, Product Manager of **Hydrosol**, a German food company, notes that soya protein can promote fat fusion and increase the emulsification properties of meat products.^[31] This gives China a huge advantage in pricing, as sources of plant protein such as soybeans and legumes have been part of Chinese food culture since ancient times, and the wide use of these products makes low cost and high

efficiency possible. Therefore, blended protein, with its lower price and a taste that is close to conventional animal protein, is an ideal transition choice for the shift to a plant-rich diet. A new generation of blended products, fusing plant-based and cultured ingredients (for example adding cultured fat to plant-based nuggets to provide the genuine taste of chicken) presents other promising opportunities to produce tasty, affordable and sustainable products.

According to AT Kearney, an American consulting firm, plant-based meat replacement and cultured meat are on their way to disrupting the global meat industry. Considering economics, consumer acceptance, regulatory response, and venturing, AT Kearney forecast that by 2040, conventional meat will be reduced to 40 per cent of the global meat market while 60 per cent of the \$1,800 billion meat market will be replaced by cultured meat (35 per cent) and novel vegan meat replacement (25 per cent).^[32] This will result in a dramatic nature-positive shift in agriculture, food ingredients, food processing and retailing.

The COVID-19 pandemic that began in 2020 has accelerated consumer acceptance and investments in alternative protein at an unprecedented rate. According to the Good Food Institute, an international non-profit, \$2.2 billion disclosed investment was made in alternative protein in 2020, more than tripling the amount raised by the sector in 2019.^[33] The investment came from both new ventures as well as conventional meat and dairy producers, such as Cargill, Maple Leaf, Tyson and PERDUE, to make their businesses future-proof.

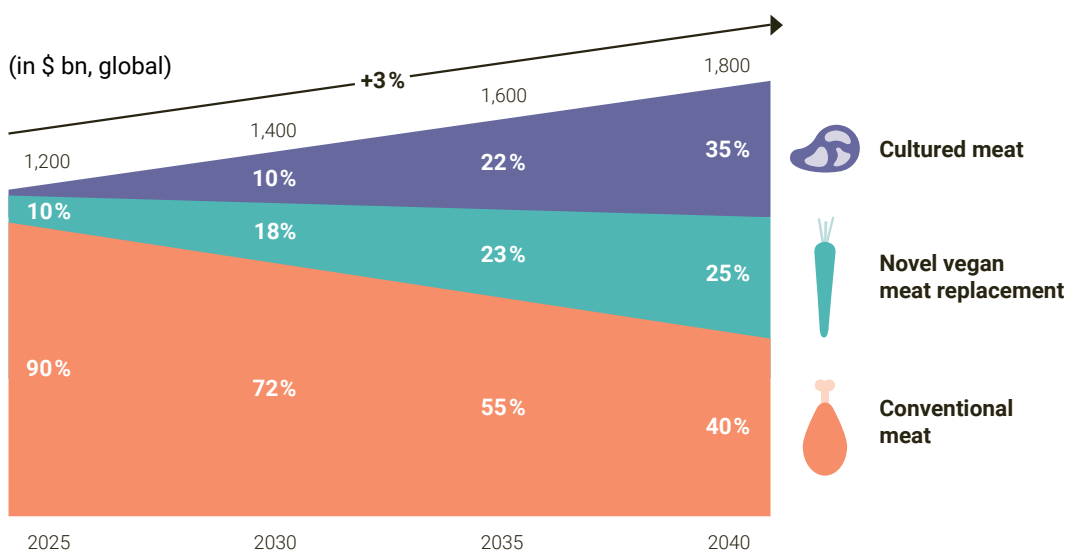
As the demand for higher quality food and animal protein keeps growing along with the global population, global challenges such as climate change, natural resource depletion, environmental degradation and food-related public health issues will only be exacerbated. This will make it impossible to keep global greenhouse gas emissions from the food system in check, will restrain farmland expansion and will increase freshwater consumption by agriculture.

Concerns about public health, environmental sustainability and animal welfare are converging to shift consumer dietary patterns in the Organisation for Economic Co-operation and Development (OECD) countries, with many people cutting down on their meat consumption and changing to more plant-rich diets.^[34]

Food fortification is another innovation that is increasingly being applied to boost the nutritional value of food. In the long term, this may reduce the need to grow more food to meet the nutritional values that people require. There is an opportunity for businesses to invest in fortification and increase their profitability and sustainability.

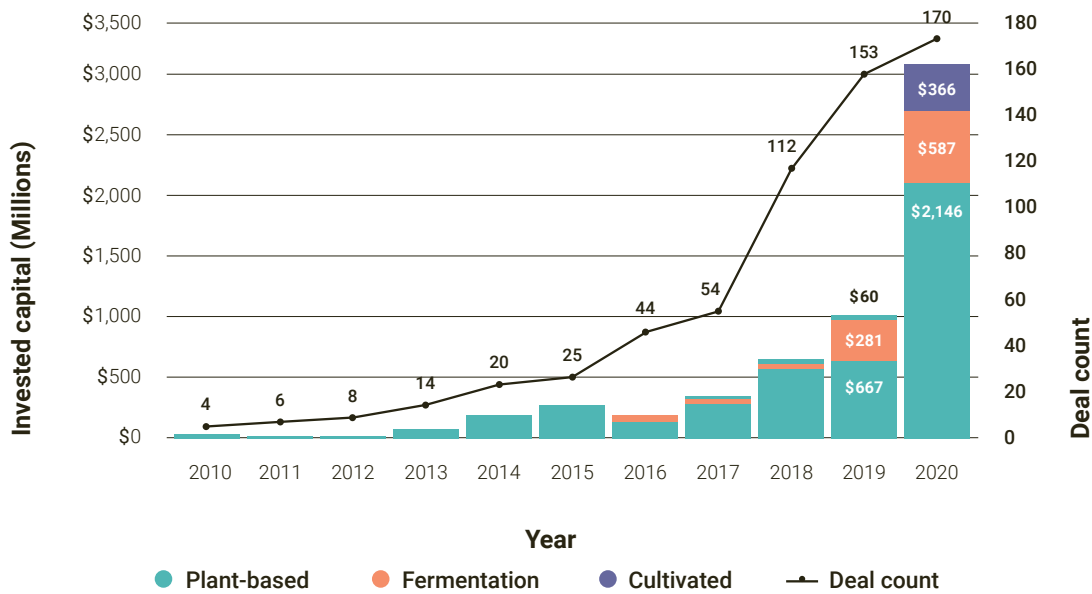
Ocean crops could become the new solution to tackle the challenge of a growing population while farming resources such as fresh water and arable land are decreasing. Given the increasing environmental pressure on agriculture, ocean crops seem to be an appealing solution that does not require fresh water or fertilizer and that absorbs carbon dioxide – which

Figure 1a: Global meat market forecast



Source: AT Kearney, How will Cultured Meat and Meat Alternatives Disrupt the Agricultural and Food Industry? (2019)

Figure 2a: Annual alternative protein invested capital and deal count



Source: The Good Food Institute, Record \$3.1 billion invested in alt proteins in 2020 signals growing market momentum for sustainable proteins (March 2021)

increases acidity and threatens the ecosystem – in the ocean. Because abundant ocean crops such as seaweed are already under huge environmental threat, human intervention to preserve this species could benefit both food supply and the marine ecosystem. In addition, ocean crops are rich in micronutrients, such as vitamins and minerals, from seawater. However, the abundance and the fast growth rate of seaweed

would not be beneficial unless countries outside Asia adopted seaweed into their diet. There are further opportunities for entrepreneurs to explore other suitable ocean species. Furthermore, entrepreneurs are searching for technology innovations to grow land crops in the ocean to overcome the scarcity of arable land.^{[35] [36]}

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Figure 2a: Annual alternative protein invested capital and deal count

Source: The Good Food Institute, Record \$3.1 billion invested in alt proteins in 2020 signals growing market momentum for sustainable proteins (March 2021) https://gfi.org/blog/2020-state-of-the-industry-highlights/?utm_source=Email&utm_medium=Email&utm_campaign=SOTIR_Media_Release

