The business case for protein expansion and diversification: 25 by 25

Compassion in World Farming believes in creating a sustainable and humane food and farming system. The flexitarian diet, which incorporates more plant based options into meals, is on the rise. Market trends indicate that the plant-based market and alternative meat market is growing year on year. Companies should look at this growing trend as a strong business opportunity only set to increase. In addition, food companies and producers are in a unique position to shape consumer health and nutrition through the decisions they make with regard to the protein they offer. Factory farming carries inherent risks for a business' future, such as bad public relations through undercover investigations and food recalls and shortages due to disease outbreak (i.e. avian flu and Salmonella). Livestock production has also been identified as a key contributor to climate change. Many companies aim to reduce greenhouse gas emissions, and as such there is a need to evaluate animal protein's contribution in a supply chain.

Corporate food policies and practices are increasingly guided by the Five Freedoms on animal welfare. These are becoming universal values that many major food businesses are committed to. This means it is becoming unacceptable to keep farmed animals in overcrowded, inhumane circumstances in order to offer cheap protein.

In light of these realities, Compassion in World Farming recommends food business diversify their protein purchases by reducing current animals purchased by 25% by 2025. Alongside adopting welfare improvements in current systems, one of the most readily available expansion opportunities is for the corporate sector is to diversify protein offerings to include plant-based ones. This paper aims to advise food businesses and producers on how to remain relevant in the market and how to contribute to a more sustainable,healthy food and farming system.

Four key reasons are outlined in this paper:

1. **Growing market opportunity**
2. **Contributing to healthy diets**
3. **Investing in the least risk**
4. **Mitigating environmental impact**

1. Growing market opportunity:

The trend of consumers moving towards a flexitarian diet (with less animal products and plant-based products as central to the diet) is on the rise for health amongst other reasons. 7.3 million Americans are vegetarian. However, an additional 22.8 million call themselves flexitarians[1].

This is a trend that businesses need to take into account to future proof themselves. According to a 2017 market report, "younger consumers who have grown up with meatless protein alternatives may have an established rapport with the concepts and brands that they will likely continue to resonate with as they age[2]." Companies should be looking to diversify and expand their protein offering to include more plant-based proteins in order to remain relevant in the market as this trend grows.

Key examples of market growth opportunity:

- According to Mintel, the global leader in market intelligence:
    - 113 million Americans (1/3 of the population) are now choosing alternative proteins on regular basis
    - Sales of plant-based proteins grew at least 9 percent year over year in 2014 and 2015
    - Total sales in 2016 exceeding $5 billion.
    - Nearly a third of Millennials (30%) indicate they consume any meat alternative product every day
    - 70% of Millennials consume a meat alternative at least a few times per week, notably more than any other generation, and coupled with the size and spending power of Millennials, indicates strong potential market for meat alternatives in the future[3]

- In one 2016 survey, more than half of Americans said that they wanted to eat more plant-based foods.
- Another survey found that 59% of consumers already ate meatless meals once a week. Beef consumption dropped 19% between 2005 and 2014.[4]
- Baum + Whiteman, a global food and restaurant consultants group, included

[1]https://www.washingtonpost.com/lifestyle/wellness/cant-do-vegetarian-how-about-flexitarian/2016/07/07/9d2610aa-3d57-11e6-80bc-d06711fd2125_story.html?utm_term=.961934c417b7
[2] Mintel Academic Reports. The Protein Report: Meat Alternatives - US - January 2017
[3] Mintel 2015 Meat AlternativeTrends
[4] http://latestvegannews.com/plant-based-food-named-top-trend-2016/

vegetables on its list of the top 11 trends on tap for 2016.[5]

- Baum + Whiteman also predicted that plant-based dining would be the number one food trend of 2018
- The global plant based protein market is set to grow at 8.29% annually.[6]
- Yahoo Food also added veggies to its 16 Food Trends list, with an item entitled "Veggies Take Center Stage.Alternative proteins expected to make up one-third of the total protein market by 2054[7]

To take advantage of this market trend toward increasing and expanding plant based alternatives, companies are already moving into this space.

For example:

- Tyson, General Mills, Maple Leaf and Campbells have already invested to diversify their protein portfolio to include plant based proteins.
- Tyson's CEO, in an investor briefing February 21, 2017, recommended Beyond Meat, which Tyson owns 5% of, as a product that was not only good to eat, but could help toward sustainably feeding the world.
- Compass Group, the largest foodservice company in the world, has committed to purchasing less animal products, promoting a 'plant forward' diet. In 2009, Compass Group launched the Be a Flexitarian Campaign that promotes substituting plant-based protein for animal protein one day a week. Compass Group has established a relationship with Hampton Creek to replace eggs in mayonnaise, dressings and other products. Hampton Creek has successfully replaced 10s of millions of eggs from the market with a cheaper, more sustainable plant based product.
- Panera Bread and Noodles and Company have similarly committed to expanding plant based options on menus. National burger chains Burger King and White Castle have introduced a vegetarian burger. Noodles and Company and Panera Bread both refer in their policies to aspiring to include more plant based options on their menus.
- Whole Foods Market has placed the Beyond Meat Burger, a plant-based burger, in the meat counter. Beyond Meat reports seven times faster sales due to this placement when compared to placement in the vegetarian section. [8]
- Cargill became the first global meat manufacture to invest in the clean meat

[5] http://www.baumwhiteman.com/2016Trends.pdf

[6] https://www.researchandmarkets.com/research/gsv3jm/global_plant

[7] Jacques, Carole (February 2015). Alternative proteins to claim a third of the market by 2054, Lux Research. luxresearchinc.com/news-and-events/press-releases/read/ alternative-proteins-claim-third-market-2054

[8] Seth Goldman, Executive Chairman of Beyond Meat board reported this an event, Eating Animals, Emory University, Center for Ethics, March 22, 2017.

(cellular agriculture) space by investing in Memphis Meat.
- Aramark, a global leader in food service, facilities and uniforms, announced it would conduct a series of plant-based culinary trainings over a six month period as part of its ongoing efforts to develop strategies that increase plant-based food offerings for consumers.

Given the clear opportunities and growing consumer demand, companies will increasingly be open to expanding protein options and, accordingly, will benefit from diversifying their protein portfolios in this way.

2. Contributing to healthy choices

Mintel reports that the key reason people are choosing meat alternatives is because they are perceived to be healthier options. A growing number of consumers are looking for healthy options on their plate.

There is increasing awareness of the negative health impacts of diets high in animal proteins, particularly processed and red meats. In October 2015, the World Health Organization classified processed meats as Group 1, meaning there is clear evidence that these products are carcinogenic to humans. This is the same category as asbestos and tobacco. Red meat was classified as a Group 2A, meaning it is probably carcinogenic to humans.[9]

A wealth of studies illustrate the impact of animal proteins on health outcomes. For example:

- According to one study, the biggest consumers of processed meat were 44% more likely to die prematurely from any cause than those who ate little of it. Consuming high level of processed meat increased the risk of death from heart disease by 72% and cancer by 11%.[10]
- Men who eat 2.5 eggs or more a week have an 81% greater chance of developing lethal prostate cancer than those who eat fewer than 0.5 eggs a week.[11]

On the other hand, there are clear health benefits to increasing plant-based protein

[9] http://www.who.int/features/qa/cancer-red-meat/en/

[10] Rohrmann et al. BMC Medicine 2013, 11:63Meat consumption and mortality - results from the European Prospective Investigation into Cancer and Nutrition https://bmcmedicine.biomedcentral.com/track/pdf/10.1186/1741-7015-11-63?site=bmcmedicine.biomedcentral.com https://www.theguardian.com/society/2013/mar/07/cancer-risk-processed-meat-study

[11] http://www.medicalnewstoday.com/articles/235321.php

consumption.One study found that the flexitarian diet could reduce global mortality by up to 10 percent. There is also evidence to suggest that vegetarian dietary patterns are associated with reduced mortality.[12] Increased plant-based protein consumption is associated with lower blood pressure and cholesterol, and lower rates of heart disease, type 2 diabetes and some types of cancer.

Further evidence that plant-based diets result in improved health outcomes includes:

- Women eating a plant-based diet have 34 percent fewer incidences of female-specific cancers, like breast, cervical and ovarian cancer.[13]
- A plant-based diet has been shown to help treat Type 2 diabetes for many diagnosed with the disease.[14]
- One in three children is America are classified as obese. One study found that when children following a plant-based diet, they showed significant improvements in systolic blood pressure, body mass index, total cholesterol, total low density lipoprotein (LDL, long referred to as "bad cholesterol"), c-reactive protein (another marker of inflammation), and insulin levels compared to their baseline.[15]
- Vegetarian diets have been shown to not only prevent but reverse heart disease in adults. [16]

With this evidence mounting, companies are now focusing on improved nutrition choices which incorporate plant based options. For example, Aramark and the American Heart Association are working together to improve the health of Americans 20% by 2020 by empowering people to make healthy food, nutrition and lifestyle choices[17]. The goal has been to decrease calorie, sodium and saturated fat intake. Their work together has resulted in 30% of their main dishes are now being vegan or

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[12] Orlich MJ1, Singh PN, Sabaté J, Jaceldo-Siegl K, Fan J, Knutsen S, Beeson WL, Fraser GE. Vegetarian dietary patterns and mortality in Adventist Health Study 2. JAMA Intern Med. 2013 Jul 8;173(13):1230-8. doi: 10.1001/jamainternmed.2013.6473. https://www.ncbi.nlm.nih.gov/pubmed/23836264

[13] Tantamango-Bartley et al, Vegetarian diets and the incidence of cancer in a low-risk population. Cancer Epidemiol Biomarkers Prev. 2013 Feb;22(2):286-94. www.ncbi.nlm.nih.gov/pubmed/23169929

[14] http://abcnews.go.com/Health/Diabetes/wireStory?id=2244647

[15] Macknin, et al. Plant-Based, No-Added-Fat or American Heart Association Diets: Impact on Cardiovascular Risk in Obese Children with Hypercholesterolemia and Their Parents, Journal of Pediatrics, 2015. http://dresselstyn.com/site/images/Plant-Based-or-American-Heart-Association-Diets-Impact-on-C.pdf

[16] Esselstyn CB, Gendy G, Doyle J, Golubic M, Roizen MF. A way to reverse CAD? J Fam Pract 2014;63:356-364b. and Ornish D, Scherwitz LW, Billings JH, Brown SE, Gould KL, Merritt TA, et al. Intensive lifestyle changes for reversal of coronary heart disease. JAMA 1998;280:2001-7.

[17] http://www.aramark.com/Files/healthy-for-life-20-by-20-year1-infographic

vegetarian and 10% of offerings containing whole grains. There is strong consumer market interest in meat alternatives for health reasons. According to a 2017 Mintel report, 30% of respondents are eating the products to watch their cholesterol, 29% are worried about their saturated fat, and 28% trying to lose weight . Investing in healthy, plant-based meat alternatives would meet this growing consumer interest and demand[18] .

3. **Investing in the least risk:**

For companies engaged in selling protein, investing solely in animal protein comes with inherent risks with regard to food safety, health, and negative public and investor relations.

Disease outbreaks such as avian flu can threaten to disrupt supply. During the avian flu epidemic in 2015, for example, there was a major shortage of eggs in the USA which drove eggs prices up. In 2015, Compass Group announced it would replace eggs with a plant based protein. Within six months they worked to eliminate 1.2 million eggs, citing the need to alleviate pressure on the market caused by avian flu. They proactively expanded their protein offerings through a plant-based egg, and simultaneously reduced risks related to a volatile eggs market.

Undercover investigations showing abusive farmers, poor management or poor welfare can also result in major risks due to negative attention from media, consumers and investors. Additionally, food safety recalls, such as the *Salmonella* outbreak from Foster Farms chicken, which lasted over 17 months and made at least 634 ill, can result in significant financial loss, distrust by consumers and concern from investors. These are important considerations to weigh up for any business' future in terms of managing risk. Incorporating more plant proteins would be a viable way to reduce risk associated with animal proteins and to avoid putting 'all the eggs in one basket.'

Crucially, the investment community is beginning to understand these risks and take action. The FAIRR Initiative has brought together a $5.6 trillion investor coalition to engage with food companies on their protein supply chains. The investor group is recommending diversification into plant based proteins as a strategy to mitigate the inherent risks posed supply chains reliant on animal proteins. Growing awareness within the investment community of the risks and opportunities linked to this issue means that companies that lag behind the curve will be seen as a risky investment.

[18] The Protein Report: Meat Alternatives - US- January 2017, Opinions of Meat Alternatives

4. Mitigating environment risks

Livestock identified as one of the most significant contributors to today's most serious environmental problems

Industrial animal production is widely recognized as having a negative environmental impact. This is not new news. In 2006, the United Nations Food and Agriculture Organization (FAO) warned that livestock posed a major threat to the environment. Henning Steinfeld, Chief of FAO's Livestock Information and Policy Branch and senior author of the report stated: "Livestock are one of the most significant contributors to today's most serious environmental problems. Urgent action is required to remedy the situation."

The report referred to livestock's 'long shadow' and made the following estimates:

The livestock sector:

- Accounts for 14.5% of all anthropogenic greenhouse gas (GHG) emissions; more than the entire global transport sector. This includes:
    - 9 percent of CO2 deriving from human-related activities
    - 65 percent of human-related nitrous oxide, which has 296 times the Global Warming Potential (GWP) of CO2. Most of this comes from manure.
    - 37 percent of all human-induced methane (23 times as warming as CO2), which is largely produced by the digestive system of ruminants, and 64 percent of ammonia, which contributes significantly to acid rain.
- Contributes to biodiversity loss; 15 out of 24 important ecosystem services are assessed as in decline, with livestock identified as a culprit due to its presence in vast tracts of land and its demand for feed crops.

Research published in Nature in 2014 showed that our diets alone – with their high levels of animal product consumption– will take us over the Paris target of limiting temperature rises to 'well below 2°C'.

Why beef alone won't cut it.

In an effort to tackle greenhouse gas emissions related to livestock, much corporate focus has been on reduction of beef and dairy. However, we should take care not to reduce consumption of red meats and dairy (ruminants) only to increase consumption of pork and poultry products, which are also highly carbon emission intensive when compared to plant based proteins. Indeed, per unit of protein, poultry (the least emissions intensive meat protein) produces 65 times more GHG emissions than

plant-based proteins.[19] In addition, increased demand for pork and poultry will certainly mean increased demand for feed crops, as the pork and poultry industries are dependent on a large supply of grain, which requires expanded use of arable lands, at the expense of forests and savannas, resulting in biodiversity loss and increased GHG emissions. Alternatively, it could lead to an intensification of crop production with a concomitant rise in the use of fertilizers and pesticides, and an increase in water pollution, use of water for irrigation, soil degradation and biodiversity loss. Davis et al (2015) report that the move away from ruminants towards pork and poultry has led to increased demand per calorie produced for nitrogen and irrigation water to support rising feed requirements.[20]

All farmed animals convert cereals inefficiently into meat. For every 100 calories fed to animals in the form of human-edible crops, we receive on average just 17-30 calories in the form of meat.[21] A Chatham House paper called feeding cereals to animals "staggeringly inefficient".[22] The International Institute for Environment and Development stresses that using cropland to produce corn, soybeans and other crops for animal feed rather than to grow food for direct human consumption is "a colossally inefficient" use of resources.[23] In the United States, it is estimated that livestock consume 7 times more grain than the entire US human population.[24]

This evidence makes clear the need to evaluate our global consumption patterns of meat, eggs and dairy.

While it is often argued that factory farming is needed to feed the world, the reality is that the United Nations estimates 796 million people are malnourished. The answer to our future food supply is not to do more of the same. Given mounting concerns for climate change, ecosystems and ever diminishing arable land and water, business as usual is not an option. We cannot build infinitely more chicken houses, feedlots or pig farms and crowd the animals into infinitely tighter spaces. These animals will inevitably require more grain-based feed, which translates to more cropland and the expansion of

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[19] Tilman, D. and Clark, M., "Global Diets Link Environmental Sustainability and Human Health," Nature 515 (2014): 518–22. 18. P. Scarborough

[20] Davis *et al*, 2015. Historical trade-offs of livestock's environmental impacts Environ. Res. Lett. 10 (2015) 125013 http://iopscience.iop.org/article/10.1088/1748-9326/10/12/125013/meta;jsessionid=848DB41D0B36D01899B831577F1E31D0.c3.iopscience.cld.iop.org

[21] Lundqvist, J., de Fraiture, C. Molden, D., 2008. Saving Water: From Field to Fork – Curbing Losses and Wastage in the Food Chain. SIWI Policy Brief. SIWI.; http://www.siwi.org/documents/Resources/Policy_Briefs/PB_From_Filed_to_Fork_2008.pdfNellemann, C., MacDevette, M., Manders, et al. (2009) *The environmental food crisis – The environment's role in averting future food crises*. A UNEP rapid response assessment. United Nations Environment Programme, GRID-Arendal, www.unep.org/pdf/foodcrisis_lores.pdf

[22] Bailey R *et al*, 2014. Livestock – Climate Change's Forgotten Sector. Chatham House.

[23] IEED briefing, March 2015. Sustainable Intensification revisited. http://pubs.iied.org/17283IIED.html

[24] US Department of Agriculture. Agricultural statistics. Washington, DC: US Department of Agriculture, 2001.

arable land use into already fragile ecosystems. Furthermore, the intensive agricultural practices required for the production of these vast amounts of grain are resulting in soil degradation that compromises our ability to continue growing food. According to the FAO, if soil management practices remain the same, we could have as few as 60 harvests left in our soil.[25] Furthermore, fertilizer runoff from industrial agriculture is known to be the greatest factor contributing to the development of oceanic "dead zones" [26] The impoverishment and destruction of natural environments in order to grow the amount of grain required to feed factory farmed animals is also a factor in the accelerated loss of biodiversity. At least two thirds of the overall loss of wildlife is attributed to food production.[27]

We cannot decrease beef to only increase poultry. The principle moving forward for food production is that arable land as much as possible needs to be used to produce food for direct human consumption, not feed for farmed animals. The corporate sector has a unique opportunity to harness their purchasing options to effect that change for a sustainable future food supply.

Food based solutions

The inclusion of plant-based proteins in food companies' protein portfolios aligns well with the push for sustainable growth within the framework of corporate social responsibility. Some US companies have also committed to less animals products, less often. Menus of Change principles suggest eating less beef, less often. For poultry and eggs they suggest eating them in moderation. Menus of Change also promotes the concept of "the protein flip" which they describe as follows: "by shifting red meat to a supporting role, and blending animal and plant proteins you can create more sustainable--and equally, if not more, delicious--menu options. "

The National Research Defense Council in 2017 released a report *Less Beef, Less Carbon* that tracked the per capita change in consumption of 197 major food items tracked by the USDA. They found that there was a 19 percent decrease in beef consumption from 2005 to 2014. They calculated that this was the biggest driver behind a 10 percent per capita decrease in diet-related climate pollution during the same time

[25] Food and Agriculture Organization of the United Nations. December 4, 2015. Soils are endangered, but the degradation can be rolled back. http://www.fao.org/news/story/en/item/357059/icode/
[26] National Oceanic and Atmospheric Association (NOAA). The causes of hypoxia in the Gulf of Mexico. https://oceanservice.noaa.gov/hazards/hypoxia/
[27] Secretariat of the Convention on Biological Diversity. 2014. Global Biodiversity Outlook 4. https://www.cbd.int/gbo/gbo4/publication/gbo4-en-hr.pdf

period. They found a drop in consumption of beef, pork, chicken and milk among the food items studied contributed the most to the reduction of greenhouse gases from 2005-2014.

Compassion in World Farming recommendations to food businesses and producers: 25 by 25

We want to collaborate with food companies to set clear targets for what portion of their protein portfolio should expand to be made up of plants in order to take advantage of market opportunities, manage risks, decrease negative impacts on health and the environment and remain relevant in the market. **In light of these realities, Compassion in World Farming recommends food business diversify their protein purchases by reducing current animals purchased by 25% by 2025.**

Each sector will need to approach this differently. We recommend the following:

- *Restaurants* should expand and diversify so that 25% of all protein offerings on the menu are plant-based. Example: Panera has committing to increasing plant-based options on their menu.
- *Food service* should commit to giving chefs and dining staff the tools to increase plant-based capacity. Example: Compass increasing plant based options on campuses.
- *Supermarkets* should look to improve product placement and incentives for plant-based purchasing. Plant-based protein purchasing progress can be tracked annually and companies can create incentives to increase purchasing of fruit/veg/alt proteins. Example: Sainsbury has made changes in the aisles including putting more vegetarian options near meat products, rewarding purchases of fruit and veg, and giving guidance to customers on how to cut down on meat.
- *Producers:* Major producers can expand and diversify to include plant based protein production Example: Tyson purchasing 5% of Beyond Meat and creating a $150 million venture capital fund for alternative protein incubators.
- Exploring innovative solutions like blended products, whole carcass utilization and reducing waste would be beneficial across all sectors.