

**To: Honorable Mayor and Members of the City Council**

**From: Councilmember \_\_\_\_\_**

Subject: Adopt an ordinance adding a new Chapter \_\_\_\_ to [Name of Your City] Municipal Code establishing the public education campaign on the benefits of plant-based food.

### RECOMMENDATION

Adopt an ordinance adding a new Chapter \_\_\_\_\_ to [Name of Your City] Municipal Code that requires [Name of Your City] Department of Health Services to establish the public education campaign on the benefits of plant-based food.

### BACKGROUND

On 24<sup>th</sup> January, 2021, the United States' National Oceanic and Atmospheric Administration reported that 2020 was the second hottest year in the human history, just behind 2016 and knocking 2019 to the third hottest year.<sup>1</sup> California is experiencing similar warming trends with significant repercussions, including the frequent heat waves, dry conditions, wildfires and draught. Governor Gavin Newsom has now declared drought emergency in 50 California counties, including Alameda.<sup>2</sup> The State Water Resource Control Board unanimously voted to cut off the water supply to thousands of farmers in the central valley.<sup>3</sup> There is a strong scientific consensus that our food system has significant impact on the environment, public health and animal welfare. The City of [Name of Your City] recognizes the importance of sustainable food system and it has wisely adopted several initiatives for the City's food procurement. This commitment can be applied to establishing public education campaign on the benefits of sustainable dietary choices.

## **A. Environmental Health**

### **1. Climate Change and Greenhouse Gas (GHG) emissions**

According to Intergovernmental Panel on Climate Change (IPCC), the food sector is responsible for 21-37% of anthropogenic GHG emissions.<sup>4</sup> University of Oxford's most comprehensive meta-analysis on the food sector's environmental impact reports that animal derived products are responsible for nearly 60% of the food sector's GHG emissions, while providing only 18% of global calorie supply.<sup>5</sup> The United Nation's Farm and Agriculture Organization (FAO) has also long warned about the environmental impact of animal agriculture and concluded that the livestock industry generates more GHG emissions than direct fuel burning from the entire transportation sector.<sup>6</sup>

But [Name of Your City]'s GHG inventory does not account for emissions from the food sector.<sup>7</sup> This is because the City of [Name of Your City] only follows Production-based GHG inventory, which does not account for consumer goods like food and beverages produced outside the city limits.<sup>7</sup> Moreover, Production-based GHG inventory also ignores emissions from the entire product lifecycle.<sup>7</sup> For example, 1 liter of beer generates 628 (100%) grams of carbon dioxide (CO<sub>2</sub>) from manufacturing (68%), transportation (6%) and retail (27%).<sup>8</sup> But the Production-based inventory would only include emissions from manufacturing (68%).<sup>8</sup> As a result, Production-based GHG inventory considerably underestimates community-wide emissions.

The City of Berkeley, for an example, recognizes this gap of GHG accounting and acknowledges the importance of considering the City’s Consumption-based GHG inventory developed by CoolClimate Network, University of California, Berkeley.<sup>7</sup> Berkeley’s Consumption-based GHG inventory reports that the City’s food sector is responsible for nearly 7 metric tons of CO<sub>2</sub> equivalent (CO<sub>2</sub>Eq) emissions per household, higher than GHG emissions from vehicles’ direct fossil fuel burning.<sup>9</sup> Most of these food emissions are associated with the consumption of meat and dairy. The meat consumption alone is responsible for more GHG emissions than natural gas use in the household.<sup>9</sup>

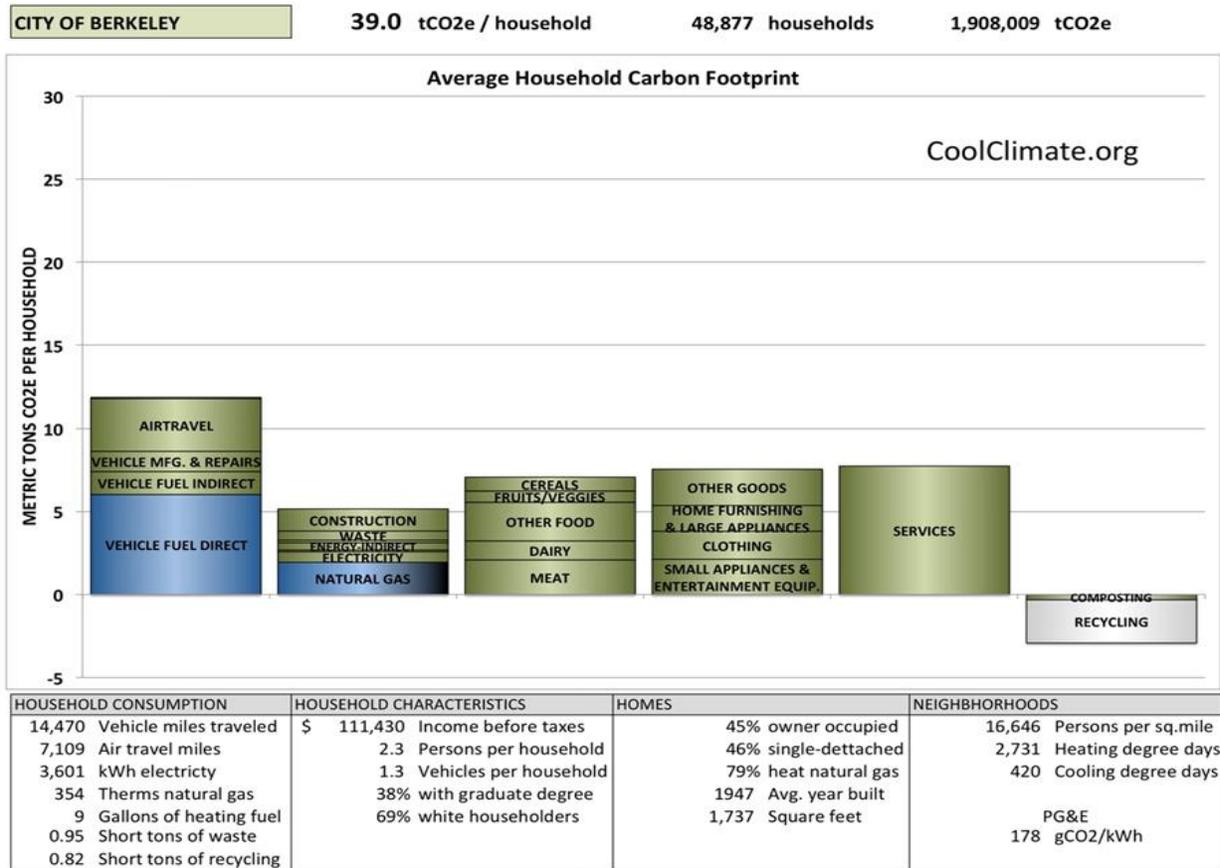


Figure 1: City of Berkeley’s consumption-based GHG inventory.<sup>9</sup>

Several agencies have warned that the food sector can violate the Paris Agreement if its emissions are not addressed urgently.<sup>10</sup> The Carbon Budget is the most used method to measure the remaining CO<sub>2</sub> emissions quota for the Paris Agreement. According to Carbon Brief, only 230-440 giga tons of CO<sub>2</sub> (GtCO<sub>2</sub>) are left in the carbon budget for us to maintain 1.5C goal within the Paris Agreement.<sup>11</sup> With more than 35 GtCO<sub>2</sub> annual emissions, it is estimated to take 6-11 years before exceeding 1.5C warming, in absence of major reductions.<sup>11</sup> Moreover, the carbon budget exclusively relies on CO<sub>2</sub> emissions and excludes non-CO<sub>2</sub> GHGs due to the variabilities of their lifespan and global warming potential (GWP). Methane is the leading non-CO<sub>2</sub> GHG with 84-87 times higher GWP over 20 years than CO<sub>2</sub>. As a result, the United Nation’s Global Methane Assessment recommends cutting 45% methane emissions in the next 10 years to reduce 0.3C warming.<sup>12</sup>

According to the U.S. Environment Protection Agency (EPA), livestock enteric fermentation is the leading cause of our nation’s methane emissions and both the enteric fermentation and manure management account for 94% of the U.S. agriculture methane emissions.<sup>13</sup> Moreover, EPA’s methane accounting is underestimated mainly due to the use of lower GWP and bottom-top method for computing methane emissions. While methane’s GWP for 20 years (84-87 times CO<sub>2</sub>) is more relevant for 6-11 years’ worth of carbon budget, the EPA continues to use methane’s GWP for 100 years (25 times CO<sub>2</sub>). Researchers from New York University and Johns Hopkins University also report that U.S. livestock methane emissions could be 39-90% higher than the EPA’s bottom-up model.<sup>14</sup>

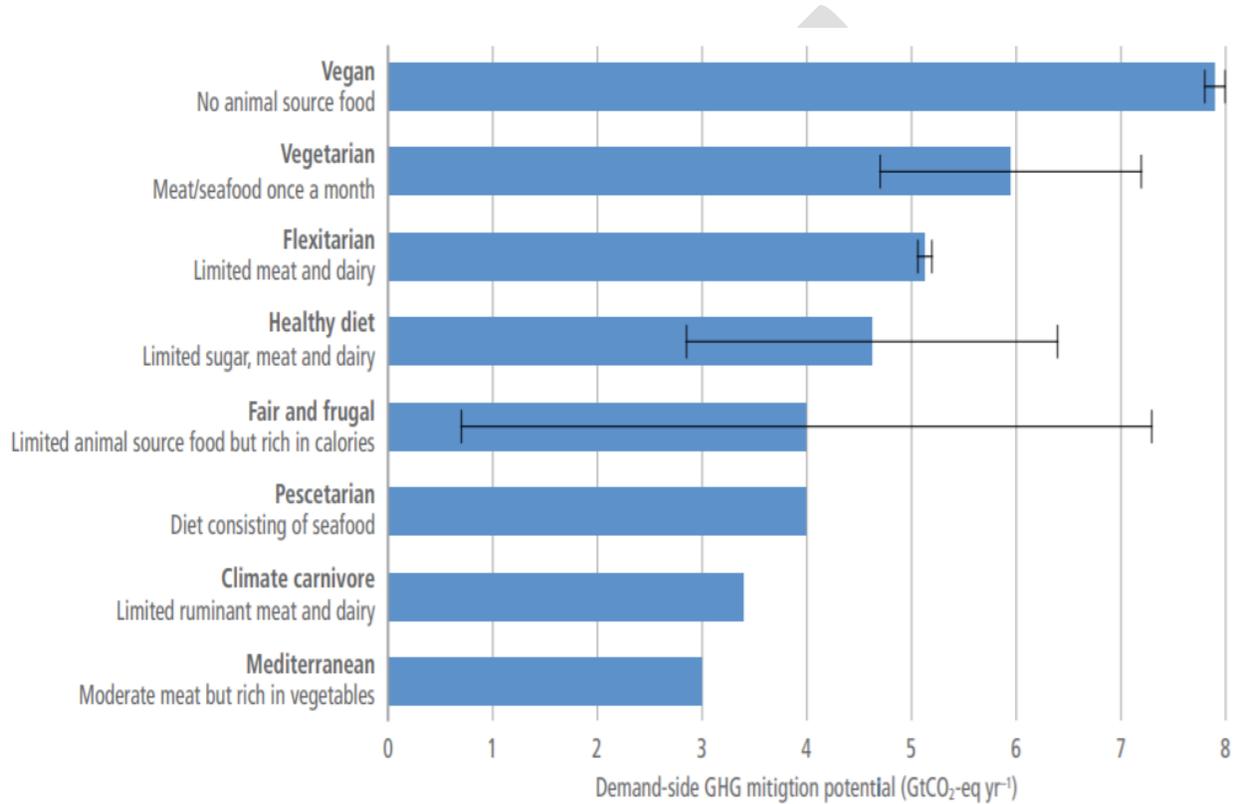


Figure 2: IPCC’s analysis of GHG mitigation potential of different diets.<sup>16</sup>

Global scientific community has emphasized the link between animal derived products and climate change for several years, indicating the importance of plant-based shift in the diet. The IPCC’s special report on Food Security finds that diets high in plant-based food can reduce GHG emissions up to 8 GtCO<sub>2</sub>Eq per year.<sup>16</sup> Despite the mounting evidence, the United States’ Department of Agriculture (USDA) projects increase in the consumption of meat and poultry.<sup>15</sup> According to researchers at University of Michigan, the U.S. diet will emit more than 650 million metric tons of CO<sub>2</sub>Eq per year by 2030.<sup>15</sup> The report estimates that replacing 50% animal derived products with plant-based food can reduce 35% of the U.S. diet related emissions.<sup>15</sup> It further concludes that a 50% plant-based shift that specifically cuts 90% beef consumption can reduce 51% of emissions from the U.S. diet.<sup>15</sup> In alignment with University of Michigan, the World Resource Institute (WRI) also reports more than 40% U.S. GHG emissions and land use reduction by achieving a 50% plant-based shift by 2050.

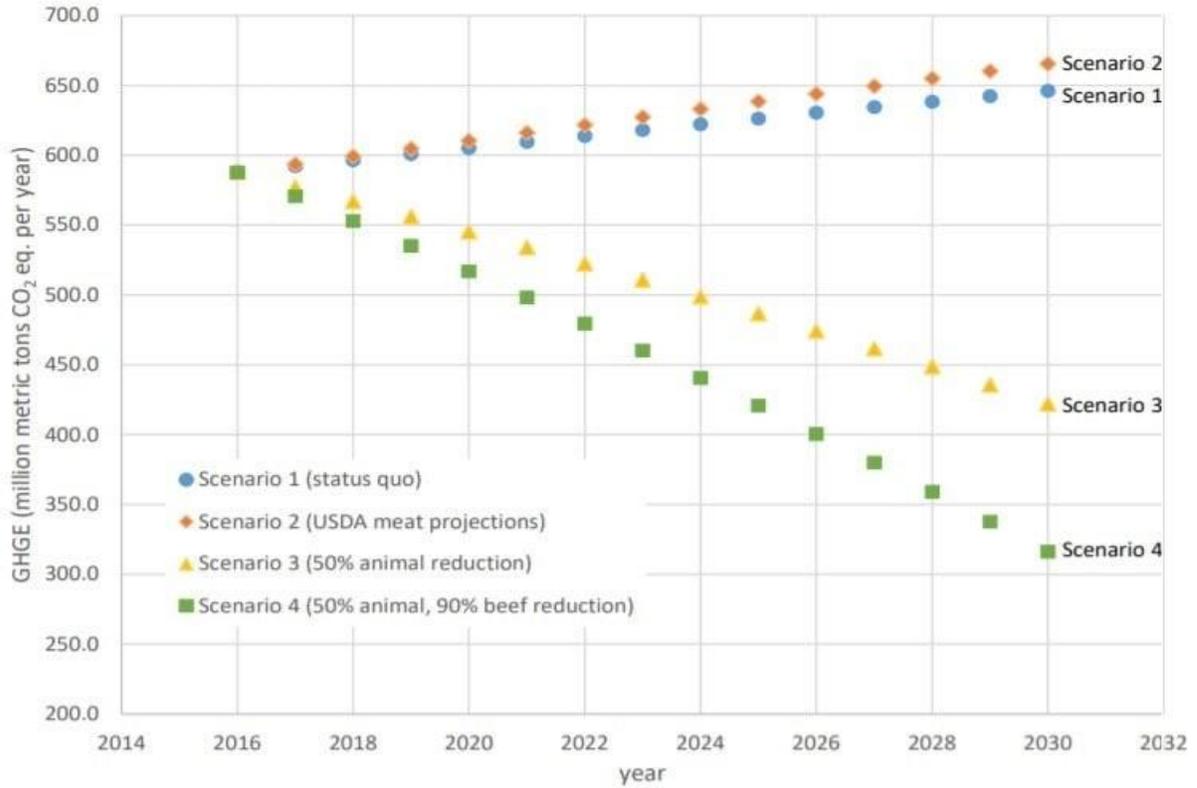


Figure 3: U.S. food emissions with different diet scenarios by 2030.<sup>15</sup>

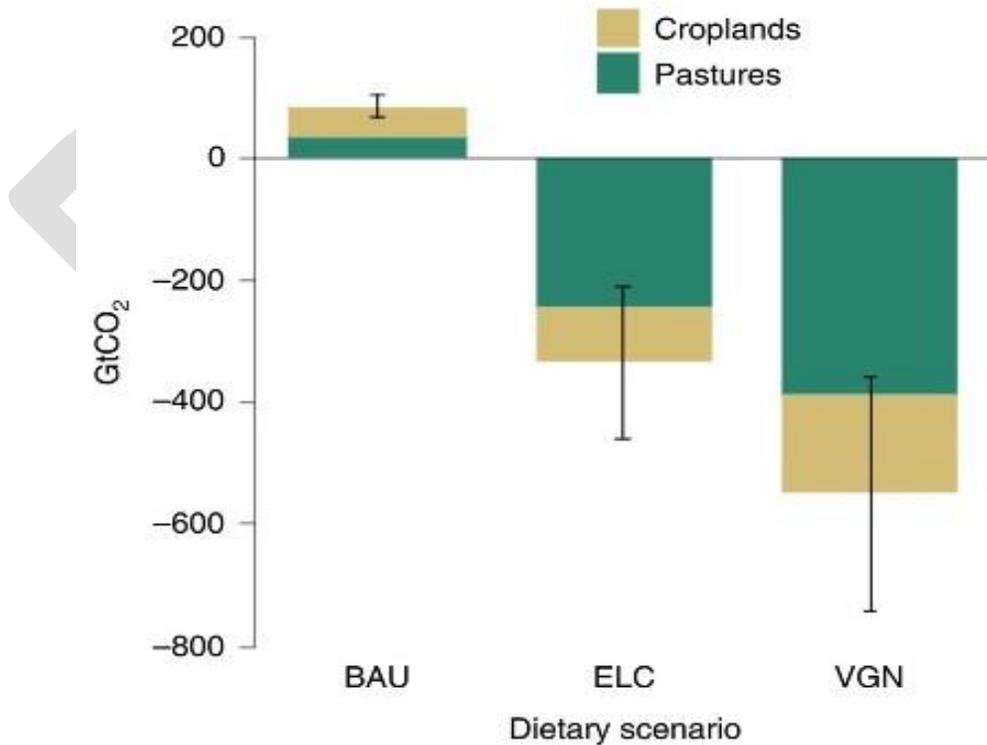


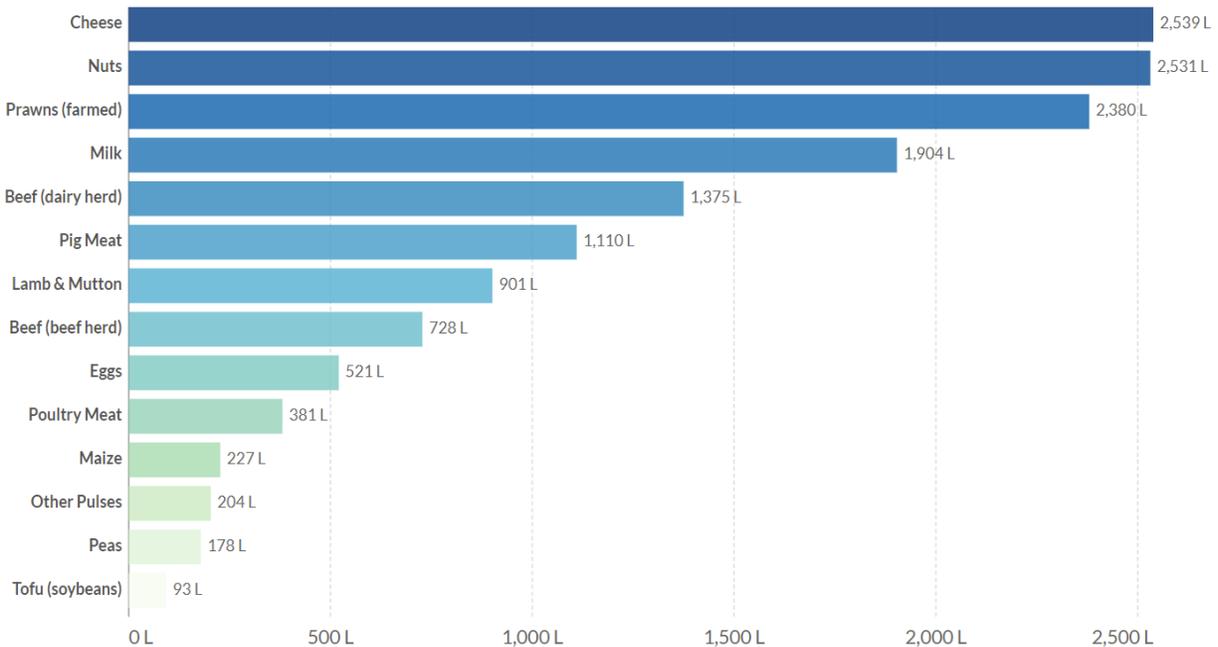
Figure 4: Cumulative changes in terrestrial carbon from three dietary scenarios. VGN = Vegan, ELC = EAT-Lancet Commission Diet, BAU = Business-As-Usual.<sup>18</sup>

## 2. Climate Change and Land Use

Livestock production is also the biggest consumer of land resources and with it, further contributes to GHG emissions, deforestation and biodiversity loss. It is estimated that 78% of global agricultural land is used for producing meat and dairy, providing only 18% of the global calorie supply and 37% protein supply.<sup>17</sup> According to IPCC, the anthropogenic CO<sub>2</sub> removal has strong potential of addressing the global warming as well as improving water availability, food production and protecting biodiversity.<sup>19</sup> Land restoration, including forests, is one of the most efficient methods of removing atmospheric CO<sub>2</sub> that is mainly constrained by livestock production for meat and dairy. It is estimated that transitioning to a plant-based food system can restore enough agriculture land to remove 332-547 GtCO<sub>2</sub> by 2050, equivalent to remaining carbon budget for limiting the global warming to 1.5C.<sup>18</sup> Therefore, it is crucial to leverage demand side climate change mitigation by shifting towards climate-friendly plant-based food.

## 3. Climate Change and Water Consumption

California is historically susceptible to drought, but both global warming and unsustainable water consumption have worsened the state's water crisis. Warmer temperatures increase evaporation, dries up water resources and makes more precipitation fall as rain than snow. Moreover, Californians consume 1,500 gallons of water per capita per day which is significantly higher than average residents in other developed countries.<sup>20</sup> Nearly half of Californian's water consumption is associated with meat and dairy consumption.<sup>20</sup> It is also consistent with California's agriculture water footprint that is considerably high for livestock feed production. Alfalfa, for example, is one of the major livestock feed crops and it is the most water intensive agriculture product in California, according to the Pacific Institute.<sup>21</sup> The plant-based proteins generally have significantly less water footprint compared to animal-based proteins. For example, it takes 3-6 times more water to produce 100g of beef protein compared to peas and other pulses.<sup>22</sup>



Source: Poore, J., & Nemecek, T. (2018). Additional calculations by Our World in Data.

Note: Data represents the global average freshwater withdrawals of food products based on a large meta-analysis of food production covering 38,700 commercially viable farms in 119 countries.

OurWorldInData.org/environmental-impacts-of-food • CC BY

Figure 5: Freshwater withdrawal per 100g of protein.<sup>22</sup>

The livestock industry is also a major polluter of scarce water resources. In the U.S., farm animals produce 20 times more waste than people.<sup>23</sup> According to the Center for Disease Control and Prevention (CDC), livestock manure contaminates surface and ground water with nitrates and pathogens.<sup>23</sup> Elevated nitrate concentrations impact blood oxygen levels causing blue baby syndrome, birth defects and miscarriages. California's Tulare County, where 65% of residents identify as Latino or Hispanic, is at the center of the water pollution crisis.<sup>24</sup> Tulare County is burdened with more than 1 million cattle, double their human population, producing more dairy milk than any other U.S. County.<sup>24</sup> Because of water pollution from agricultural runoff, more than 20% of the public water systems in Tulare County provide water with nitrate concentration levels higher than the federal limits.<sup>24</sup> This results in extremely high rates of miscarriages and Sudden Infant Death Syndrome in Tulare County.<sup>24</sup> Therefore, diversification of our food system with less water-intensive products can significantly reduce California's water crisis.

## B. Public Health

In the U.S., 6 in 10 individuals live with at least one chronic illnesses and it is the leading driver of nation's \$3.8 trillion healthcare cost.<sup>25</sup> According to the CDC, poor nutrition is one of the major factors responsible for the epidemic of chronic illnesses.<sup>26</sup> The International Agency for Research on Cancer (IARC), a cancer research arm of the World Health Organization, has reviewed more than 800 cancer research studies and found that processed meat and red meat are carcinogenic and probable carcinogenic, respectively.<sup>27</sup> Colorectal cancer (CRC) is the second leading cause of the U.S. cancer related deaths.<sup>28</sup> The IARC reports that 50g of processed meat consumption per day alone increases CRC risk by 18%.<sup>27</sup> Several studies also link consumption of red and processed meats with other types of cancers, including pancreatic cancer, prostate cancer and breast cancer.<sup>27</sup> While cutting back on meat reduces the risk of cancer, the intake of

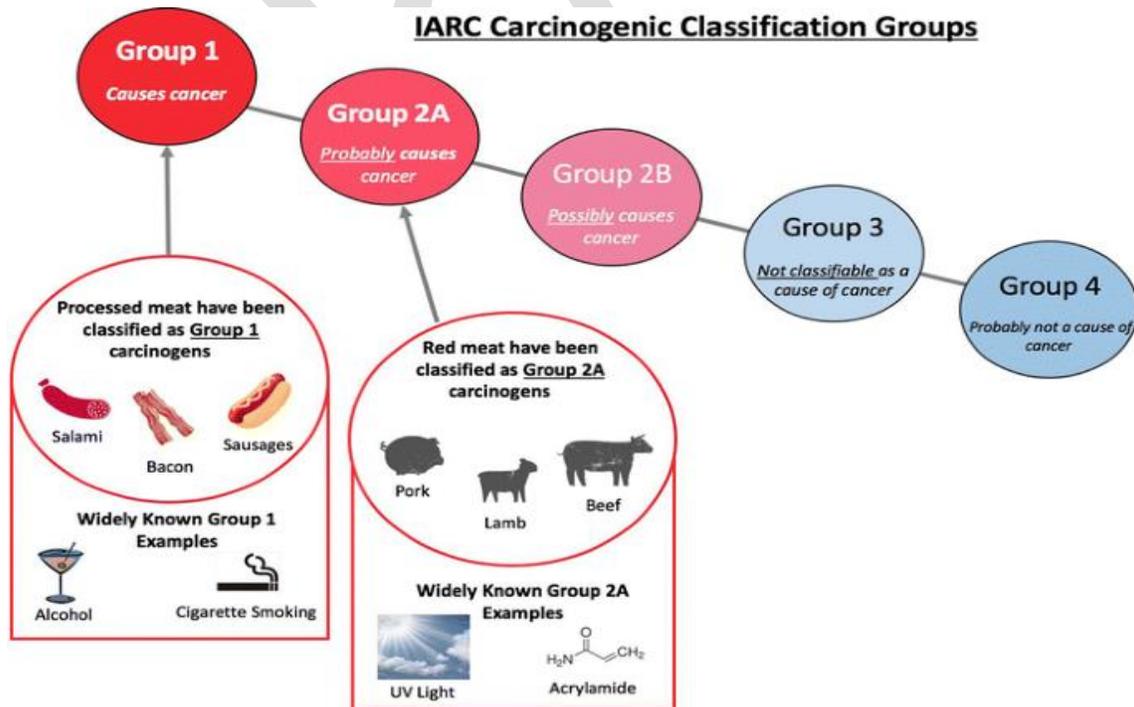


Figure 6: Carcinogenic classification of red and processed meats.<sup>30</sup>

vegetables, fruits, grains and legumes helps prevent cancer. In the case of CRC, the intake of just three servings of whole grains can reduce the disease risk by 17%.<sup>29</sup>

Dairy milk contains bovine growth hormones such as Insulin-like Growth Factor 1 (IGF-1) that induces cell proliferation and inhibits cell death.<sup>31</sup> The IGF-1 is not destroyed during the process of pasteurization and it is known to promote cancer development.<sup>31</sup> The United States' National Institute of Health commissioned a study that analyzed dietary pattern of 52,795 North American women for 7.9 years and found a 50% increase of breast cancer risk among women drinking one glass of dairy milk per day compared to women who consumed soy milk.<sup>31</sup> The nation's leading health organizations like American Cancer Society are now backing up the growing evidence of lowered breast cancer risk with consumption of soy foods like, soy milk, tofu and edamame.<sup>32</sup>

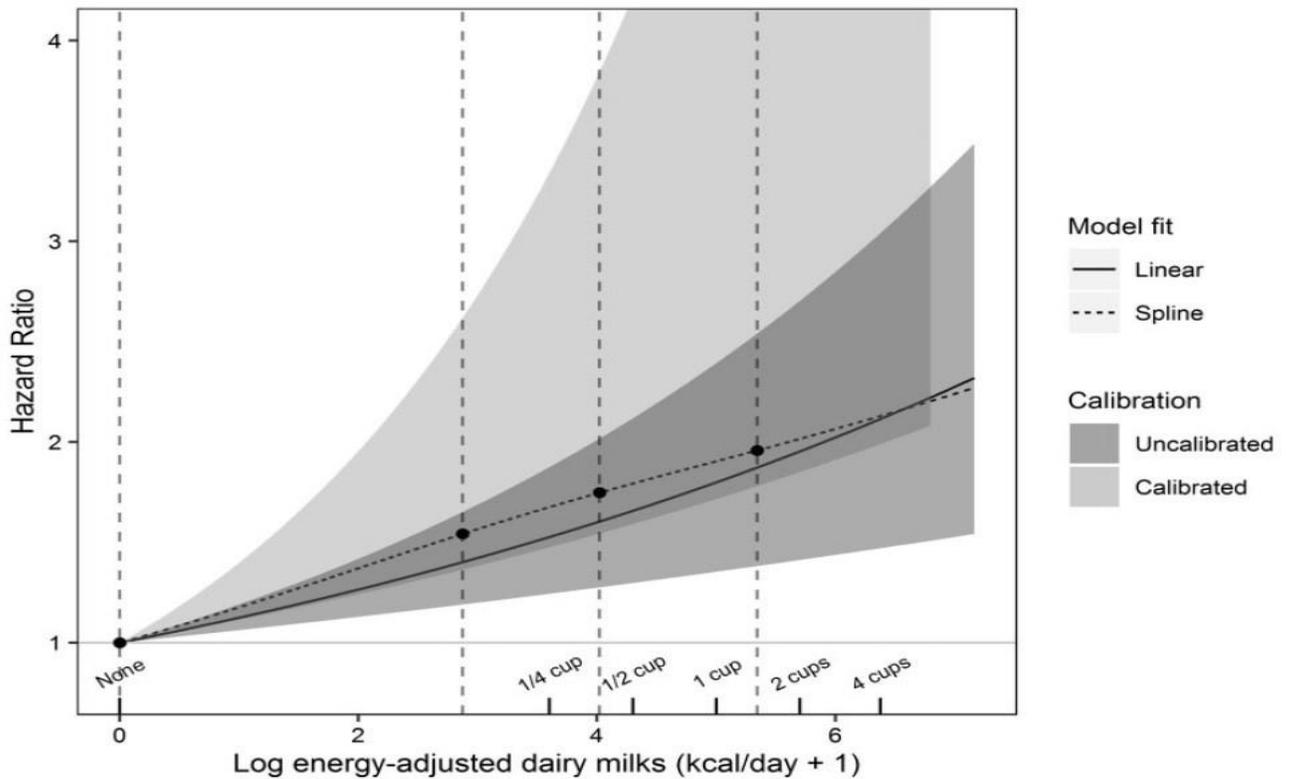


Figure 7: Correlation between breast cancer hazard ratio and dairy milk consumption.<sup>31</sup>

Cardiovascular disease is the leading cause of the death in the U.S. The incidence of cardiovascular disease is strongly correlated with red meat consumption from high levels of saturated fats and the presence of Trimethylamine N-Oxide (TMSO).<sup>33</sup> Moreover, a recent study with 74,578 participants reported that pro-inflammatory foods like red and processed meats can increase the risk of cardiovascular disease by 38% compared to a diet rich in anti-inflammatory foods like green leafy vegetables, whole grains and fruits.<sup>34</sup> On the other hand, plant-based food is associated with lowering the risk, preventing and even reversing heart disease.<sup>35</sup>

According to the CDC, 34.2 million Americans, over 1 in 10, live with diabetes.<sup>36</sup> We are seeing a significant increase in new cases of diabetes type-1 and type-2 among youth.<sup>36</sup> If this trend continues, the CDC projects that 1 in 5 Americans will be living with diabetes by 2025.<sup>37</sup> Diets

rich in animal-derived products are associated with an increased risk of diabetes. Researchers in Cambridge University reported that daily egg consumption increases the risk of diabetes by 60%.<sup>38</sup> A recent meta-analysis of 28 studies concluded that people consuming the most amount of meat, red meat and processed meat increased type-2 diabetes risk by 33%, 22% and 25%, respectively.<sup>39</sup>

In the case of dairy, A1- $\beta$  Casein (cow's milk protein) is shown to be a primary trigger for diabetes type-1 among individuals with genetic risk factors.<sup>40</sup> A1- $\beta$  Casein is associated with diabetes type-1 incidence among the children of age 0-14 years across 19 countries.<sup>40</sup> Dairy is considered to be a healthy option in many western societies. But growing scientific evidence is now raising concern over dairy consumption. Recently, the Canadian government actually removed the dairy category from their recommended dietary guidelines.<sup>41</sup> Like previously mentioned plant-based health benefits, a plant-based diet is associated with preventing, managing and even reversing type-2 diabetes.<sup>42</sup> In 2019, the Harvard School of Public Health published a meta-analysis from 307,099 participants including 23,554 type-2 diabetes cases and concluded that people consuming predominantly plant-based food had 23% lower type-2 diabetes risks.<sup>43</sup>

### C. Animal Health

According to CDC, One Health is the concept that the health of people is connected to the health of animals and environment.<sup>44</sup> Industrial agriculture systems, for example, has ignored the welfare of both wild and domestic animals with subsequent consequences for environmental and public health. Agriculture is estimated to be the main threat to 86% of 28,000 species at the risk

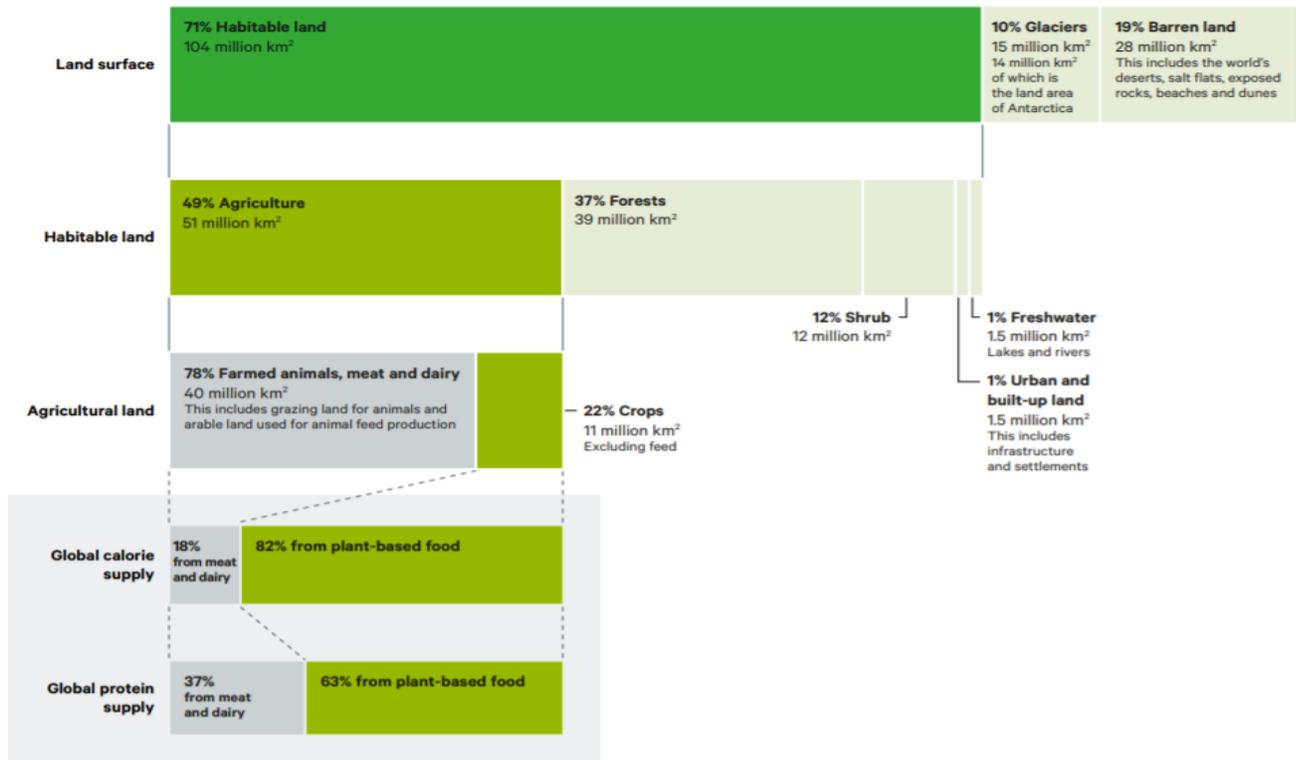


Figure 8: Global Land footprint.<sup>17</sup>

of extinction.<sup>17</sup> The Chatham House, independent research and policy institute, estimates that 38% of the Earth's habitable land has been cleared out for raising domestic animals for meat and dairy.<sup>17</sup> Therefore, small number of farm animal species now dominate global biomass. Today, farm animals account for 60% all Earth's mammal species compared to only 4% for wild mammals.<sup>17</sup> The expansion of agriculture lands into natural ecosystems also increases the risk of the spillover of zoonotic diseases like COVID-19.<sup>17</sup>



Figure 9: Point Reyes National Seashore map indicating locations of Tule Elk and beef and dairy operations.<sup>57</sup>

The USDA's Wildlife Services reported killing 1.2 million native animals in 2019 for avoiding their interference with the livestock.<sup>45</sup> More locally, the conflict between the native Tule Elk and cattle ranchers at Point Reyes National Park demonstrates the impact of meat and dairy production on local wildlife. The fences are placed to stop Tule Elk from competing for food and water with cattle.<sup>46</sup> This captivity is depriving the native Tule Elk and resulting in their preventable deaths from starvation.<sup>47</sup> Recently, Harvard Law Clinic has filed a lawsuit in the

United States District Court on behalf of California residents and Animal Defense Fund.<sup>46,47</sup> Therefore, shifting diets towards plant-based diet can significantly help protecting wildlife by ecosystem restoration.<sup>17</sup> It is estimated that U.S. dietary shift from beef to beans can free up 692,918 km<sup>2</sup>, equivalent to 42% of U.S. cropland, for ecosystem restoration.<sup>17</sup>

Industrial animal agriculture also deteriorates welfare of domestic animals. Each year more than 9 billion animals and birds are killed in the U.S., requiring meatpacking workers to slaughter hundreds of animals per hour.<sup>48,49</sup> The fast pace work frequently violates the federal law, Humane Methods of Slaughter Act, requiring to stun animals before slaughter.<sup>50,51,52</sup> According to USDA, over half a million chickens miss the stun bath and end up in scalding tank alive.<sup>53,54</sup> Similar concerns of animal welfare are observed from industrial feedlots to transportation of these animals. Many animals don't live long enough through the pain and suffering of their life to reach the slaughterhouse.<sup>55</sup> Animal welfare concerns are heightened in the seafood industry with severe consequences for environment and biodiversity. According to the Oceana's report, global bycatch accounts for 40% of total catch, worth 63 billion pounds each year.<sup>56</sup> Despite several conservation initiatives, the U.S. bycatch also totals 2 billion pounds each year, equivalent to the total annual catch of many fishing nations.<sup>56</sup> Therefore, shifting to plant-based foods can significantly reduce the need to supply animal derived products at the cost of animal health.

## D. Review of Existing Policies and Ordinance Overview

According to CDC's Guide to Strategies to Increase the Consumption of Fruits and Vegetables, a diet high in vegetables and fruits decreases the risk of several chronic illnesses, including heart disease, stroke, high blood pressure, diabetes and various forms of cancers.<sup>58</sup> But USDA Dietary



Figure 10: U.S. dietary intake compared to USDA recommendations.<sup>59</sup>

Guideline 2020-25 finds that 80% of the U.S. population eat less plant-based foods like vegetables, fruits, legumes and whole grains than recommended, and nearly 70% of the population is consuming more meat, poultry and eggs.<sup>59</sup> The higher consumption of animal derived products is not only harmful for the public health, but also contributes to on-going climate crisis and biodiversity loss. Scientific consensus is growing on the fact that plant-based foods are healthier for our bodies, environment and animals. As a result, House Representative Nydia Velazquez and House Representative Jamaal Bowman have introduced the Healthy Future Students and Earth Pilot Program Act.<sup>60</sup> This bill would create a grant program for school districts to provide healthy and climate-friendly plant-based entrée options to students. Many U.S. states and cities are also joining the movement to establish programs that increase plant-based food options.

More locally, California Governor, Jerry Brown signed Senate Bill 1138, Plant-based Meals to provide plant-based options in hospitals, health facilities and state prisons.<sup>61</sup> California Assembly also has two active bills, Assembly Bill (AB) 558 and 1289, to shift towards plant-based food system.<sup>62,63</sup> Assembly Members Adrian Nazarian, Ash Kalra and Sharon Quirk-Silva have introduced AB 558, California School Plant-based Food and Beverage Programs that would allow local education agencies to apply for reimbursement of \$0.30 per meal with a plant-based food and beverage option. Assembly member Ash Kalra authored AB 1289, Smart Climate Agriculture Program, to develop a grant program for transitioning small to mid-sized California farmers from raising livestock or growing feed crops to less water-intensive plant-based agriculture. Several California cities are also adopting plant-based policies for their food procurement programs. San Francisco Board of Supervisors, for example, passed an ordinance to cut 50% purchase of animal products in jail facilities by 2024 and 15% in public hospitals by 2023.<sup>64</sup> The City of Mountain View took one step further by engaging in public education campaign with \$30,000 allocated budget in the city's Climate Action Plan.<sup>65</sup>

[Summary of Your City's Plant-based Policies]

#### FINANCIAL IMPLICATIONS

Staff time will be necessary to develop, oversee and evaluate the public education campaign.

#### ENVIRONMENTAL SUSTAINABILITY

The plant-based shift in the local food system can significantly reduce [Name of Your City]'s GHG emissions, water footprint and protect ecosystems.

## **References**

1. National Oceanic and Atmospheric Administration. <https://www.noaa.gov/news/2020-was-earth-s-2nd-hottest-year-just-behind-2016>
2. Californians Asked to Reduce Water Use. <https://abc7news.com/california-drought-conditions-water/10871099/>
3. Regulators Impose Water Restrictions. <https://www.latimes.com/california/story/2021-08-03/water-regulators-impose-restrictions-on-california-farmers>
4. IPCC Climate Change and Land [https://www.ipcc.ch/site/assets/uploads/sites/4/2020/02/SPM\\_Updated-Jan20.pdf](https://www.ipcc.ch/site/assets/uploads/sites/4/2020/02/SPM_Updated-Jan20.pdf)
5. Reducing Food's Environmental Impact Through Producers and Consumers <https://science.sciencemag.org/content/360/6392/987>
6. United Nation's Farm and Agriculture Organization. <http://www.fao.org/3/a0701e/a0701e.pdf>
7. [Name of Your City]'s Climate Action Plan. [https://www.cityof\[Name of Your City\].info/Clerk/City\\_Council/2020/07\\_Jul/Documents/2020-07-21\\_Special\\_Item\\_05\\_Climate\\_Action\\_Plan\\_pdf.aspx](https://www.cityof[Name of Your City].info/Clerk/City_Council/2020/07_Jul/Documents/2020-07-21_Special_Item_05_Climate_Action_Plan_pdf.aspx)
8. Consumer-Oriented Lifecycle Assessment of Food. <https://escholarship.org/uc/item/55b3r1qj>
9. Consumption-based GHG Inventories. [https://coolclimate.\[Name of Your City\].edu/inventory](https://coolclimate.[Name of Your City].edu/inventory)
10. WRI' Creating Sustainable Food Future <https://research.wri.org/wrr-food>
11. Refining the Remaining 1.5C Carbon Budget. <https://www.carbonbrief.org/guest-post-refining-the-remaining-1-5c-carbon-budget>
12. Global Methane Assessment. <https://www.ccacoalition.org/en/resources/global-methane-assessment-full-report>
13. EPA's US GHG Emissions and Sinks. [https://www.epa.gov/sites/default/files/2021-04/documents/us-ghg-inventory-2021-main-text.pdf?VersionId=wEy8wQuGrWS8Ef\\_hSLXHy1kYwKs4.ZaU](https://www.epa.gov/sites/default/files/2021-04/documents/us-ghg-inventory-2021-main-text.pdf?VersionId=wEy8wQuGrWS8Ef_hSLXHy1kYwKs4.ZaU)
14. Underestimates of Methane from Intensively Raised Animals. <https://iopscience.iop.org/article/10.1088/1748-9326/ac02ef>
15. Implications of Future U.S. Diet Scenarios. <https://css.umich.edu/sites/default/files/publication/CSS20-01.pdf?fbclid=IwAR2DKQshGzZG2ZB4ypXUFvoYiuVrLg-vEA1VftakrRIIsf80wnSyJnrakCI>
16. IPCC's Special Report on Food Security. [https://www.ipcc.ch/site/assets/uploads/sites/4/2021/02/08\\_Chapter-5\\_3.pdf](https://www.ipcc.ch/site/assets/uploads/sites/4/2021/02/08_Chapter-5_3.pdf)
17. Food System Impacts Biodiversity Loss. [https://www.chathamhouse.org/sites/default/files/2021-02/2021-02-03-food-system-biodiversity-loss-benton-et-al\\_0.pdf?fbclid=IwAR0t\\_3jzuTLw8YZjLIQKYiO6L1q3-wHidKRnKtZCgsdd74lTO0h1Yyu\\_kto](https://www.chathamhouse.org/sites/default/files/2021-02/2021-02-03-food-system-biodiversity-loss-benton-et-al_0.pdf?fbclid=IwAR0t_3jzuTLw8YZjLIQKYiO6L1q3-wHidKRnKtZCgsdd74lTO0h1Yyu_kto)
18. Carbon Opportunity Cost of Animal-Sourced Food. <https://www.nature.com/articles/s41893-020-00603-4>
19. IPCC's Summary for Policymakers. [https://www.ipcc.ch/report/ar6/wg1/downloads/report/IPCC\\_AR6\\_WGI\\_SPM.pdf](https://www.ipcc.ch/report/ar6/wg1/downloads/report/IPCC_AR6_WGI_SPM.pdf)

20. California's Water Footprint. [https://pacinst.org/wp-content/uploads/2013/02/ca\\_ftprint\\_full\\_report3.pdf?fbclid=IwAR3uMZd-keSDgX4scl8gsLy5CgNCQok4hko-fr3cE9XrdWTG-0bL60CjIi](https://pacinst.org/wp-content/uploads/2013/02/ca_ftprint_full_report3.pdf?fbclid=IwAR3uMZd-keSDgX4scl8gsLy5CgNCQok4hko-fr3cE9XrdWTG-0bL60CjIi)
21. California Agriculture Water Use. <https://pacinst.org/wp-content/uploads/2015/04/CA-Ag-Water-Use.pdf?fbclid=IwAR36qyizCYcZuFdzxo9mgu3JNwCN4b93xyp7wYgC6gORqMlxp0UrQvMx9A>
22. Environmental Impact of Food Production. <https://ourworldindata.org/environmental-impacts-of-food>
23. CDC: Understanding CAFOs and Their Impact on Communities [https://www.cdc.gov/nceh/ehs/docs/understanding\\_cafos\\_nalboh.pdf](https://www.cdc.gov/nceh/ehs/docs/understanding_cafos_nalboh.pdf)
24. Nitrate Contamination in San Joaquin Valley, California <https://www.nationalpartnership.org/our-work/repro/reports/clean-water-case-study-san-joaquin-valley.html#:~:text=Intensive%20agriculture%20and%20dairy%20production,far%20exceed%20federal%20health%20limits>
25. CDC: Chronic Diseases in America. <https://www.cdc.gov/chronicdisease/resources/infographic/chronic-diseases.htm>
26. CDC: Chronic Diseases. <https://www.cdc.gov/chronicdisease/about/index.htm>
27. CDC: Carcinogenicity of the Consumption of Red Meat and Processed Meat. <https://www.who.int/news-room/q-a-detail/cancer-carcinogenicity-of-the-consumption-of-red-meat-and-processed-meat>
28. CDC: Cancer Deaths in the U.S. <https://www.cdc.gov/cancer/dcpc/research/update-on-cancer-deaths/index.htm>
29. PCRM: Colorectal Cancer. <https://www.pcrm.org/health-topics/colorectal-cancer>
30. Biological and Molecular Features of Red and Processed Meats in CRC. <https://link.springer.com/article/10.1007/s00535-016-1294-x>
31. Dairy, Soy and Risk of Breast Cancer. <https://pubmed.ncbi.nlm.nih.gov/32095830/>
32. American Cancer Society. <https://www.cancer.org/latest-news/soy-and-cancer-risk-our-experts-advice.html>
33. National Institute of Health (NIH). <https://www.nih.gov/news-events/nih-research-matters/eating-red-meat-daily-triples-heart-disease-related-chemical>
34. PCRM: Avoiding Inflammatory Foods. <https://www.pcrm.org/news/health-nutrition/avoiding-inflammatory-foods-such-red-and-processed-meat-lowers-risk-heart>
35. PCRM: Plant-based Diets. <https://www.pcrm.org/good-nutrition/plant-based-diets>
36. CDC: Diabetes. <https://www.cdc.gov/diabetes/library/features/diabetes-stat-report.html>
37. Diabetes Rise in The U.S. <https://www.medicalnewstoday.com/articles/278140>
38. PCRM: Egg Consumption Increases Risk of Diabetes. <https://www.pcrm.org/news/health-nutrition/egg-consumption-increases-risk-diabetes>
39. PCRM: Meat Increases Risk of Type-2 Diabetes. <https://www.pcrm.org/news/health-nutrition/meat-increases-risk-type-2-diabetes>
40. A1-Beta Casein Protein and Type-1 Diabetes. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5518798/?fbclid=IwAR1hOvHvDMTrL9Muz16W>
41. BBC: Is Milk Healthy? Canada's New Food Guide Says Not Necessarily. <https://www.bbc.com/news/world-us-canada-46964549>

42. PCRM: Diabetes. <https://www.pcrm.org/health-topics/diabetes>
43. Harvard T.H. Chan. <https://www.hsph.harvard.edu/news/press-releases/following-a-healthy-plant-based-diet-may-lower-type-2-diabetes-risk/#:~:text=The%20researchers%20found%20that%20people,ate%20healthful%20plant>
44. CDC One Health. <https://www.cdc.gov/onehealth/basics/index.html>
45. Agriculture Department Killed 1.2 Million Native Animals in 2019. <https://biologicaldiversity.org/w/news/press-releases/agriculture-departments-wildlife-services-killed-approximately-12-million-native-animals-in-2019-2020-10-07/>
46. Harvard Law Clinic. <https://animal.law.harvard.edu/news-article/clinic-sues-nps-over-tule-elk/>
47. Center for Biological Diversity. <https://biologicaldiversity.org/w/news/press-releases/national-park-service-pressed-tear-down-elk-barrier-ensure-water-supply-point-reyes-elk-2020-08-31/>
48. Food Empowerment Project. <https://foodispower.org/human-labor-slavery/slaughterhouse-workers/>
49. PETA. <https://www.peta.org/issues/animals-used-for-food/>
50. USDA: Humane Methods of Slaughter Act. <https://www.nal.usda.gov/awic/humane-methods-slaughter-act>
51. ASPCS: Stopping Extreme-Speed Slaughter <https://www.asPCA.org/animal-protection/public-policy/stopping-extreme-speed-slaughter>
52. Congressional Research Service: Nonambulatory Livestock and the Humane Methods of Slaughterhouse Act. <http://nationalaglawcenter.org/wp-content/uploads/assets/crs/RS22819.pdf>
53. USDA: Poultry Slaughter. [https://www.nass.usda.gov/Publications/Todays\\_Reports/reports/pslaan20.pdf](https://www.nass.usda.gov/Publications/Todays_Reports/reports/pslaan20.pdf)
54. The Humane League. [https://actnow.thehumaneleague.org/live-shackle-slaughter/?utm\\_source=blog+post+on+thl+web&utm\\_medium=blog&utm\\_campaign=tys on&utm\\_content=text](https://actnow.thehumaneleague.org/live-shackle-slaughter/?utm_source=blog+post+on+thl+web&utm_medium=blog&utm_campaign=tys on&utm_content=text)
55. Iowa State University to Lead Research to Increase Pig Survivability [https://www.cals.iastate.edu/news/releases/iowa-state-university-lead-research-increase-pig-survivability?fbclid=IwAR0MkJcupYHwBztYfskUuKfCuY-SrRrql\\_EBb4zEEpWLjsJZfBOXUKesepA](https://www.cals.iastate.edu/news/releases/iowa-state-university-lead-research-increase-pig-survivability?fbclid=IwAR0MkJcupYHwBztYfskUuKfCuY-SrRrql_EBb4zEEpWLjsJZfBOXUKesepA)
56. Oceana: Wasted Catch. [https://oceana.org/sites/default/files/Bycatch\\_Report\\_FINAL.pdf?fbclid=IwAR2PyXbPEb5sITpKctN8pmgtz\\_FaK\\_-UPVXQ4tBdTGUE8LIyze0sWVvAazng](https://oceana.org/sites/default/files/Bycatch_Report_FINAL.pdf?fbclid=IwAR2PyXbPEb5sITpKctN8pmgtz_FaK_-UPVXQ4tBdTGUE8LIyze0sWVvAazng)
57. Managing Free-range Tule Elk in Point Reyes National Seashore. <https://escholarship.org/content/qt5nn85365/qt5nn85365.pdf?t=q2cwxo>
58. CDC: Strategies to Prevent Obesity and Other Chronic Diseases. [https://www.cdc.gov/obesity/downloads/strategies-fruits-and-vegetables.pdf?fbclid=IwAR0dP11JJVovIMnuGA8zjl1S\\_DEjBTzan5nXHg8wFfmLC8rPUcapaahJS94](https://www.cdc.gov/obesity/downloads/strategies-fruits-and-vegetables.pdf?fbclid=IwAR0dP11JJVovIMnuGA8zjl1S_DEjBTzan5nXHg8wFfmLC8rPUcapaahJS94)
59. USDA Dietary Guideline 2020-25. [https://www.dietaryguidelines.gov/sites/default/files/2020-12/Dietary\\_Guidelines\\_for\\_Americans\\_2020-2025.pdf](https://www.dietaryguidelines.gov/sites/default/files/2020-12/Dietary_Guidelines_for_Americans_2020-2025.pdf)
60. Congresswoman Nydia Velazquez. <https://velazquez.house.gov/media-center/press-releases/vel-zquez-bowman-introduce-legislation-provide-plant-based-entr-es>

61. Senator Nancy Skinner. <https://sd09.senate.ca.gov/news/20180918-governor-brown-signs-senator-skinner%E2%80%99s-sb-1138-offer-plant-based-meal-options>
62. AB 558: California Legislative Information. [https://leginfo.ca.gov/faces/billTextClient.xhtml?bill\\_id=202120220AB558](https://leginfo.ca.gov/faces/billTextClient.xhtml?bill_id=202120220AB558)
63. AB 1289: California Legislative Information. [https://leginfo.ca.gov/faces/billNavClient.xhtml?bill\\_id=202120220AB1289](https://leginfo.ca.gov/faces/billNavClient.xhtml?bill_id=202120220AB1289)
64. San Francisco's Jails to Halve Meat Consumption Under New Law. <https://www.livekindly.co/san-francisco-jails-halve-meat-consumption-under-new-law/>
65. City of Mountain View's Sustainability Action Plan. [https://ehq-production-us-california.s3.us-west-1.amazonaws.com/5c86e619ea132407461131efe30b9469536ecb85/documents/attachments/000/006/610/original/SAP\\_4\\_Council\\_Report.pdf?X-Amz-Algorithm=AWS4-HMAC-SHA256&X-Amz-Credential=AKIAIBJCUK4ZO4WUUA%2F20210826%2Fus-west-1%2Fs3%2Faws4\\_request&X-Amz-Date=20210826T213221Z&X-Amz-Expires=300&X-Amz-SignedHeaders=host&X-Amz-Signature=eff26f0fb58771b1a7e368d0a170bdab06215065ca732bcdeeb0c7aa460bd9e6](https://ehq-production-us-california.s3.us-west-1.amazonaws.com/5c86e619ea132407461131efe30b9469536ecb85/documents/attachments/000/006/610/original/SAP_4_Council_Report.pdf?X-Amz-Algorithm=AWS4-HMAC-SHA256&X-Amz-Credential=AKIAIBJCUK4ZO4WUUA%2F20210826%2Fus-west-1%2Fs3%2Faws4_request&X-Amz-Date=20210826T213221Z&X-Amz-Expires=300&X-Amz-SignedHeaders=host&X-Amz-Signature=eff26f0fb58771b1a7e368d0a170bdab06215065ca732bcdeeb0c7aa460bd9e6)

## Ordinance NO. \_\_\_\_\_

### **#. Findings and Purpose.**

- A. Scientific evidence has established that plant-based foods provide several health, environmental benefits.
- B. The following addition to [Name of Your City] Municipal Code is necessary because of the local food system impacts on climate change, water crisis, public health and biodiversity.
  1. California is one of the most “climate-challenged” regions in North America and climate change is making extreme weather conditions more frequent and severe.
  2. California is projected to see 77% increase in statewide average area burned due to frequent wildfires and two-third decline in water supply from snowpack by 2100.
  3. 50 California Counties, accounting for 42% of the state population, are currently under drought emergency and thousands of farmers face water restrictions.
  4. Scientific evidence suggests that animal derived products have a major environmental footprint ranging from greenhouse gas emissions to water use.
  5. Animal agriculture accounts for 14.5-18% of total anthropogenic greenhouse gas emissions, producing only 18% of the global calorie supply.
  6. Livestock enteric fermentation is the leading cause of U.S. methane emissions.
  7. Livestock enteric fermentation and manure management are responsible for 94% of the nation’s agricultural methane emissions.
  8. The average Californian consumes 15,000 gallons of water each day and nearly 50% of this water footprint is associated with meat and dairy consumption.
  9. Plant-based foods have significantly lower greenhouse gas and water footprints.
  10. According to researchers at University of Michigan, a 50% plant-based shift in the U.S. diet can reduce 35-51% of the nation’s food emissions by 2030.
  11. The World Resource Institute estimates that a 50% plant-based shift in the U.S. diet by 2050 can reduce nation’s agriculture greenhouse gas emissions and land use by more than 40%.
  12. The Intergovernmental Panel on Climate Change reports that a plant-based shift can reduce up to 8 gigatons of greenhouse gas emissions per year.
  13. The Center for Disease Control and Prevention reports that poor nutrition is a major factor for 6 in 10 Americans living with at least one chronic condition, which contributes to nation’s \$3.8 trillion healthcare costs.
  14. The United States Department of Agriculture’s 2020-25 Dietary Guideline estimates that 70% of Americans consume more meat, poultry and eggs, and 80% of the population eat less vegetables, fruits, legumes and whole grains.
  15. The World Health Organization has classified processed meat and red meat as a carcinogenic and probable carcinogenic, respectively.
  16. Several studies have linked higher consumption of animal derived products with chronic illnesses like heart disease, diabetes and cancer.
  17. Many international and national health agencies recommend increasing intake of vegetables, fruits, legumes and whole grains in order to improve health and lower risk of chronic diseases.
  18. Intensive animal agriculture declines the health of native wildlife and domestic animals.

19. The United States' seafood industry accounts for 2 billion pound of bycatch with subsequent consequences on environment and biodiversity.
- C. It is the intent of [Name of Your City] Council to establish a public education campaign on the benefits of plant-based foods.

**#. Applicability.**

The requirement of this Chapter shall apply to City of [Name of Your City]'s Department of Health Service.

**#. Definitions.**

- A. "Plant-based Foods" means food items derived entirely from plants and contains no animal sourced products.
- B. "Plant-predominant Diets" means diets high in plant-based foods.
- C. "Culturally Appropriate" means inclusive of various cultures.

**#. Establishing Public Education Program on the Benefits of Plant-based Foods.**

- A. The Department of Health Services shall establish a public education program for the purpose of promoting the benefits of eating plant-based food.
- B. The education campaign shall focus on:
1. Climate and environmental benefits of eating plant-based food
  2. Health benefits of plant-predominant diets
  3. Benefits of wildlife protection and animal welfare
- C. The Campaign shall address these common misconceptions about plant-based food:
1. Plant-based diets are boring and bland
  2. Plant-based diets are nutritionally inadequate
  3. Plant-based foods are expensive
  4. Plant-based diet means giving up your favorite foods.
- D. The Public Health and Environmental Health Divisions of the Department shall develop graphics and fact sheets about the benefits of eating plant-based.
- E. Such graphics and fact sheets shall be printed in the designated Citywide languages and any other language determined by the Department of Health Services.
- F. The graphics and fact sheets shall be displayed throughout the City of [Name of Your City].
- G. The graphics and fact sheets shall be distributed at library, senior centers, community centers and public events.
- H. The graphics and fact sheets shall be shared on City of [Name of Your City]'s social media page.
- I. The Public Health and Environmental Health Divisions of the Department shall develop a toolkit for community organizations, restaurants and grocery stores.
- J. The toolkit shall include images of flyers and handouts, templates for newsletter and social media messages, and information for more resources and assistance.
- K. The toolkit shall be shared with community organizations, restaurants and grocery stores.
- L. The toolkit shall be made available for the community on the City of [Name of Your City]'s website.
- M. The Department of Health Services shall organize free monthly public events on the benefits of the plant-based foods.

N. The Department of Health Services shall work with community organizations to develop new programs and strategies.

**#Annual Review.**

The City shall review annually the requirement of this ordinance for consistency and submit a staff report with the details on community outreach, best practices and future strategies.

**#. Severability.**

If any word, phrase, sentence, part, section, subsection, or other portion of this Chapter, or any application thereof to any person or circumstance is declared void, unconstitutional, or invalid for any reason, then such word, phrase, sentence, part, section, subsection, or other portion, or the prescribed application thereof, shall be severable, and the remaining provisions of this Chapter, and all applications thereof, not having been declared void, unconstitutional or invalid, shall remain in full force and effect. The City Council hereby declares that it would have passed this title, and each section, subsection, sentence, clause and phrase of this Chapter, irrespective of the fact that any one or more sections, subsections, sentences, clauses or phrases is declared invalid or unconstitutional.

**#. Effective Date.**

The provision of this Chapter shall become effective on January 1<sup>st</sup>, 2022.