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## How Nurturing America's Agricultural Landscape Can Alleviate Its Health Crisis

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**Feeding Ourselves:**  
**How Nurturing America's Agricultural Landscape Can Alleviate Its Health Crisis**

## **Executive Summary**

To be a good steward of the land and to know how to grow food is a skill and wisdom we cannot do without. Thomas Jefferson once said, "Agriculture is our wisest pursuit, because it will, in the end, contribute most to real wealth, good morals, and happiness." What Jefferson knew, and what many recognize as timeless wisdom, is that freedom requires land ownership. Yet, centralized planning and a growing desire to greenwash our food systems – the attempt to make a product, policy, or activity appear to be more environmentally friendly or less environmentally damaging than it really is – is strangling America's food supply chain. Many globalist-focused governments blame agriculture and farming for the environmental crisis.

While it is true that cows produce toxic waste, such as methane, properly farmed cows provide an inextricable link between land management and the cultivation of healthy soil and crops. For example, nitrogen found in animal excrement is required for healthy plant growth and can be absorbed back into the soil, turning waste into rich fertilizer. It is part of a natural self-sustaining positive feedback loop. Farming in congruence with this natural flow is known as regenerative farming. Every element of nature – worms, bugs, cow dung, coyotes, plants, etc. – contributes to a thriving ecosystem in which there is no waste. The result is vibrant and nutrient-dense food that comes from healthy soil.

Depleted soil and disruptions in the food supply put America at high risk for disease. Despite its economic wealth and technological advancement, America is listed as one of the unhealthiest nations in the world. The country's abundance of nutritionally void and processed food contributes to skyrocketing obesity rates. Ignoring this fact comes with catastrophic costs to the health and economic welfare of citizens.

The possibility of food shortages and water scarcity due to severe drought is an increasing reality. While many are focused on the theatrics of Washington, the crisis of feeding communities is an issue of vital concern. The Covid-19 pandemic and policies contributing to rapid inflation emphasize the need for sustainable sources of nutritious food produced closer to home. It is imprudent to believe we can continue to count on food production from abroad to keep our country's citizens fed.

Policy makers should also review American agriculture through the lens of foreign policy. In the words of Henry Kissinger, "Control oil and you control nations. Control food and you control the people." Foreign countries and domestic moguls, such as China and Bill Gates, are purchasing American farmland at alarming rates. According to the Land Report, Gates is the largest private farmland owner in the United States, with 242,000 acres.<sup>1</sup> This in and of itself isn't alarming. Reportedly, Gates, who has no experience with land cultivation or farming, wants to assist farmers in becoming more sustainable. However, he is also a known supporter of the fervent greening of agriculture, insisting farmers become carbon neutral at all costs. In addition, Gates is an investor in plant-based meat companies such as Beyond Meat and Impossible Foods.

These manufactured consumables are loaded with unhealthy seed oils and highly processed ingredients, like soy protein, that contribute to soil erosion and monocrop agriculture. The concentration of land ownership in the hands of the wealthiest few contributes to the ability

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<sup>1</sup> Eric O'Keefe, "Bill Gates, America's Top Farmland Owner," The Land Report, August 31, 2022.  
<https://landreport.com/2022/08/farmer-bill/>

of an elite class to dictate how others should eat. This kind of unequal land distribution and control of the food supply is akin to a monopoly.

This analysis will briefly review how the United States' agribusiness came to produce poor quality food, and how it continues to strangle small family farmers. It will then present policy problems, goals, and alternatives that can begin to return agriculture to a more free market enterprise and promote farming as a viable career path. It will also examine the methods of farming that can foster sustainability while simultaneously meeting the nutritional needs of the country. Solutions must be politically and economically feasible and efficient. Independence, both economic and health, depends on the steps Americans take to reevaluate and restructure the country's agricultural system to ensure a free, healthy, and prosperous society for all in this country.

## **Introduction**

While agriculture is a significant contributor to economic prosperity for the United States, the rapid advancement of the food industry has not been questioned until recently. Applying the techniques of science and the Industrial Revolution to the process of growing food has come with a significant price tag to human and environmental health. Agriculture, food, and related industries contributed \$1.055 trillion to the U.S. gross domestic product (GDP) in 2020, a 5 percent share. The output of America's farms contributed \$134.7 billion of this sum or about 0.6 percent of GDP. The total contribution of agriculture to GDP is larger than 0.6 percent because sectors related to agriculture rely on agricultural inputs to contribute added value to the economy.<sup>2</sup>

The number of farms in America is declining sharply. Today, there are about 2 million farms in operation in the US.<sup>3</sup> This is a significant decrease from 1935, when the number of farms peaked at nearly 7 million.<sup>4</sup> The average age of farmers is increasing, with an insufficient number of younger farmers to take their place. One-third of farmers are older than 65, and 40% of the land is expected to change hands in the next 15 years.<sup>5</sup> Smaller and family farms operate on very slim margins, which are growing slimmer due to huge agribusinesses. This makes it difficult for a farm to be passed down to children, as it is becoming an unviable business. Children leave the family business to go off to college to earn degrees for higher paying jobs in a more technologically advanced society. Most farmers are one natural disaster or medical bill away from extinction. For example, John and Mary Rieckmann run a dairy farm in Wisconsin that's been in their family for nearly two centuries. In a story in Time magazine in 2019 entitled "They're Trying to Wipe Us Off the Map: Small American Farmers Are Nearing Extinction," the

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<sup>2</sup> AG and Food Sectors and the Economy," USDA ERS - Ag and Food Sectors and the Economy, accessed October 22, 2022, <https://www.ers.usda.gov/data-products/ag-and-food-statistics-charting-the-essentials/ag-and-food-sectors-and-the-economy/>

<sup>3</sup> "Farming and Farm Income," USDA ERS - Farming and Farm Income, September 1, 2022, <https://www.ers.usda.gov/data-products/ag-and-food-statistics-charting-the-essentials/farming-and-farm-income/>.

<sup>4</sup> Business Insider, <https://markets.businessinsider.com/news/stocks/farming-industry-facts-us-2019-5-1028242678#while-there-are-more-than-2-million-farms-across-the-us-farmers-and-ranchers-make-up-just-13-of-the-labor-force-2>

<sup>5</sup> "Farms for a New Generation in California," American Farmland Trust, July 25, 2022, <https://farmland.org/project/farms-for-a-new-generation-in-california/>

Rieckmann's reported \$300,000 in debt with bill collectors hounding them about the feed bill and a repayment for a used tractor they bought to keep the farm going.<sup>6</sup>

While the number of people who receive direct personal income from farming is on a sharp decline, the business of agriculture is still booming. Agricultural operations provide important indirect economic contributions through their patronage of agricultural input and service suppliers. In addition, they also generate business and wealth via the transportation, processing, and marketing of agricultural commodities. Generous estimates suggest that the agro-food system overall, directly and indirectly, contributes seventeen percent of the jobs and thirteen percent of the gross domestic product in the United States, most of which is generated by the wholesale, retail, and food-service industries.<sup>7</sup>

Traditionally agricultural neighborhoods are being converted to manufacturing facilities, including food manufacturing. This moves our country further away from the goal of growing more food with necessary vitamins and nutrients, and ensures that people become more reliant upon processed, unhealthy factory food. The industrialization of farming has resulted in soil erosion and, in turn, poor human health. However, it is important to distinguish between industrial and traditional farming when it comes to environmental health.

The blanket narrative that farming is the major contributor to environmental damage is false, particularly when considering many smaller farms employ sustainable and regenerative practices. Recently, the disparagement of meat and dairy products has escalated to support unsubstantiated theories of climate change. According to a report from the American Farmland Trust, an acre of farmland produces 58-70 times fewer greenhouse gases than an acre of urban-developed land.<sup>8</sup> Furthermore, the consumption of animal-sourced foods (also known as ASFs) is regularly and increasingly being represented as unethical and harmful to both our health and the planet, to the point that some advocate a diet without or with very low amounts of ASFs, and in some cases even the end of livestock farming.<sup>9</sup> Such claims are misguided and overreactive. Interpretations that call for the extinction of livestock are often misinterpreted and presented out of context.<sup>10</sup>

While factory farming can produce an abundance of environmentally harmful waste, regenerative agriculture does not. The negative externalities associated with farming and agricultural production are mostly a result of large factory farms and monocrop agricultural practices. These include methane production from cows, soil depletion, toxic runoff into water supplies, and health threats caused by chemical fertilizers and genetically modified crops and growth hormones in animals.

Most vegans resist the exploitation of animals and the environmental destruction such behaviors cause. Their concerns are legitimate: the way animals are fed and treated on industrialized farms can be disturbing. Animals are often crammed into pens with no room to

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<sup>6</sup> Alana Semuels, "They're Trying to Wipe Us Off the Map: Small American Farmers Are Nearing Extinction," TIME [https://time.com/5736789/small-american-farmers-debt-crisis-extinction/?utm\\_source=newsletter&utm\\_medium=email&utm\\_campaign=the-brief-farmers-debt&utm\\_content=20191130](https://time.com/5736789/small-american-farmers-debt-crisis-extinction/?utm_source=newsletter&utm_medium=email&utm_campaign=the-brief-farmers-debt&utm_content=20191130) (Accessed February 18, 2023)

<sup>7</sup> Jackson-Smith, D. B., & Jensen, E. (2009). Finding Farms: Comparing Indicators of Farming Dependence and Agricultural Importance in the United States. *Rural Sociology*, 74(1), 37–55. <https://doi-org.lib.pepperdine.edu/10.1526/003601109787524016>

<sup>8</sup> "California Policy," American Farmland Trust, May 4, 2022, <https://farmland.org/project/capolicy/>

<sup>9</sup> Frédéric Leroy and Robyn Alders, "Animal Source Foods in Ethical, Sustainable & Healthy Diets," Animal source foods in ethical, sustainable & healthy diets, 2020, <https://aleph-2020.blogspot.com>

<sup>10</sup> Ibid

move. They are fed food not in agreement with their natural digestive system. For example, cows are ruminants, and are supposed to feed on grass and other plant-based fodder. Most industrial farms feed cows corn and soy-based products filled with GMOs (genetically modified organisms) and chemicals. They often live in their own feces and are pumped with antibiotics and hormones to make their meat more enticing to the consumer, and to ensure they consistently produce milk byproducts. These chemicals enter the human body through consumption, which may result in significant hormone regulation disruption. While there is conflicting data, some studies show that consistent ingestion of glyphosate may be a contributing factor to life-threatening diseases, particularly blood cancers like Hodgkin lymphoma and multiple myeloma.<sup>11</sup>

Vegan and environmental activists have convinced many that a vegan diet is healthier than eating animal products. From a macronutrient and essential mineral and amino acid level, this is not true. Some studies point to deficiencies in vitamin B6 and niacin, zinc, and iron. Some can recover such deficits with supplementation; however, food sourced vitamins and minerals are usually preferable. Blood type O-positive, which is the most common blood type in Americans, often requires meat products for sustained energy and health. Additionally, meat substitute products are highly processed, often causing increased inflammation in the body. They also create equivalent environmental damage through manufacturing plant emissions. Despite this, vegan options are heavily promoted in the name of health, both human and environmental, and people are buying them. Globally, the market value for plant-based products is forecast to be \$14.3 billion in 2025, compared to an estimated \$8.9 billion in 2019.<sup>12</sup>

Certain populations, such as those who live in economically underdeveloped countries, require meat for sufficient levels of nutrients, particularly in children still developing muscle mass, bone density, and reproductive systems. Iron deficiency and iron-deficiency anemia (IDA) affects approximately two billion people worldwide, and most of them reside in low- and middle-income countries.<sup>13</sup> Maintaining a normal iron balance in these settings is challenging, as iron-rich foods with good bioavailability are of animal origin and either expensive and/or available in short supply.<sup>14</sup>

The fact is that cows and other animals are necessary on a farm if it is to withstand inclement weather patterns and reduce its carbon footprint. Several studies find that with appropriate regenerative crop and grazing management, ruminants not only reduce overall greenhouse gas emissions but also facilitate the provision of essential ecosystem services, increase soil carbon sequestration, and reduce environmental damage.<sup>15</sup> Returning land to a more productive and nutrient-dense state with a functional ecosystem requires grazing animals.

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<sup>11</sup> Luoping Zhang et al., “Exposure to Glyphosate-Based Herbicides and Risk for Non-Hodgkin Lymphoma: A Meta-Analysis and Supporting Evidence,” *Mutation Research/Reviews in Mutation Research* 781 (September 2019): 186–206, <https://doi.org/10.1016/j.mrrev.2019.02.001>.

<sup>12</sup> M. Shahbandeh, “Market Value of Plant Protein Worldwide 2020-2027,” Statista, September 14, 2022, <https://www.statista.com/statistics/658619/global-plant-protein-market-value/>

<sup>13</sup> E. Mantadakis, E. Chatzimichael, P. Zikidou, Iron Deficiency Anemia in Children Residing in High and Low-Income Countries: Risk Factors, Prevention, Diagnosis and Therapy. *Mediterr J Hematol Infect Dis.* 2020 Jul 1;12(1):e2020041. doi: 10.4084/MJHID.2020.041. PMID: 32670519; PMCID: PMC7340216

<sup>14</sup> E. Mantadakis, Iron Deficiency Anemia in Children Residing in High and Low-Income Countries: Risk Factors, Prevention, Diagnosis and Therapy.

<sup>15</sup> W. R. Teague et al., “The Role of Ruminants in Reducing Agriculture's Carbon Footprint in North America,” *Journal of Soil and Water Conservation* 71, no. 2 (January 2016): pp. 156-164, <https://doi.org/10.2489/jswc.71.2.156>.

It is difficult to have a conversation about changes in the agricultural landscape without simultaneously discussing consumer behavior. The mass consumption of cheap, processed food has driven the market for industrialized agriculture, which overproduces a handful of crops like soy, wheat, and corn to the detriment of soil health. Americans habitually overconsume meat products which contributes to the need for factory farming which is capable of raising large numbers of livestock and maximizes production at minimal costs.<sup>16</sup> These farms owned by large agribusinesses are the reason that people condemn farm production and those who eat ASFs. There are legitimate concerns when livestock and animals are crammed into pens and fed grains laden with pesticides and toxic chemicals. However, this style of farming diverges drastically from smaller family farms with biodiverse land that produce natural, nutrient-dense food, and allow animals to roam free in their natural habitats. These types of farms should not be prevented from doing business.

To reduce the demand of ASF's to a level that can be sustained by ethical farming and business practices, consumers would have to adjust their behavior to eat more fruits and vegetables and less processed food. It would also likely require less consumption of hormone-filled dairy and all animal products. However, this does not require the extreme of abandoning meat and its byproducts altogether.

Our USDA food pyramid is based on outdated nutritional science and the formidable opinions of food lobbyists. Even the updated My Plate model is not appropriate for all people. Caloric intake as a diet metric is an archaic model of assessment for good health. Most need more salt than the USDA recommends. It is shown that an overreliance on carbohydrates in the standard American diet is promulgating obesity. Most adults need more lysine, an essential amino acid necessary for growth and tissue repair, and dense sources of proteins that come from animal products. The current model does not consider food quality or sourcing nor the need for essential fats, minerals, and vitamins. Most professionals on the cutting edge of health science recognize that, for most people, an anti-inflammatory diet is the most healthful. This means a diet of reduced grains and processed foods, moderate animal protein, and an abundance of fruits and vegetables, as well as natural fats from fish, olive oil, and avocados. Fats play a crucial role in the production of hormones, which are key in regulating digestive health as well as mood. This is assuming our food is free of pesticides and hormones.

Healthy eating habits and our sustainable food production demand moderation. Livestock currently produces more than one-third of the world's protein, and ruminant animals have the unique ability to convert nondigestible bio-mass into proteins providing the optimal balance of essential amino acids. These factors call for the prudent use of ruminant animals to optimize land use for the production of high-quality protein. Any recommendations for changes in agriculture production should consider the impact on the climate, but must also focus on maximizing the use of natural resources for the creation of nutritious diets.<sup>17</sup>

The conundrum is how to return to a viable, vital, and thriving agricultural economy, while still producing enough food to sustain the current population and do so with minimal cost to both farmers and consumers.

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<sup>16</sup> "Factory Farm Definition & Meaning," Merriam-Webster (Merriam-Webster), accessed October 23, 2022, <https://www.merriam-webster.com/dictionary/factory%20farm>.

<sup>17</sup> Donald K. Layman, "Assessing the Role of Cattle in Sustainable Food Systems," *Nutrition Today* 53, no. 4 (2018): pp. 160-165, <https://doi.org/10.1097/nt.0000000000000286>

Biodynamic and regenerative farming practices address all concerns. Regenerative agricultural practices build soil health, sequester atmospheric carbon back into the earth, conserve groundwater resources, and increase biodiversity: things that appeal to environmentalists, health advocates, and small farmers alike. Aligning the food system with the biodiversity and rhythms of nature requires a holistic approach. Such an approach would require multiple policy changes. One without the other can have unintended consequences and negative externalities. Policy ought to support traditional methodologies of farming while removing power from agriculture behemoths that practice factory farming and monocrop agriculture, such as Cargill, Monsanto, ADM, and Bayer.

The questions are: will industrial agribusiness allow such farms to flourish? Will regenerative farms be able to produce enough food to feed the country? How can agrarian lifestyles be respected and supported? Are there alternative methods of farming that can support urban populations and food deserts in a more local way?

## **A Brief History of Agriculture**

The source of many agriculture market failures in the United States stem from a long line of government interventions. In response to the widespread economic turmoil of the Dust Bowl (1931-1939) and the Great Depression (1929-1933), the government implemented three significant bills that led to permanent supply controls. The 1922 Grain Futures Act established grain futures, and the June 1929 Agricultural Marketing Act established a board to market food to consumers and increase the economic significance of agriculture. The 1933 Agricultural Adjustment Act, or the original “Farm Relief Bill,” was designed to boost agricultural prices to relieve the national economy, and asserted that the livelihood of farmers and of the American people were too closely tied to supply controls to lift them. The government paid farmers subsidies to limit their supplies by not planting on parts of their land. As a result, the nationwide cost of food relative to income was higher until the 1970s.

After the end of WWII, the government repurposed materials originally used for the munitions industry, such as ammonium nitrate and nerve gas, into fertilizers and pesticides. Fossil fuels promoted the burst of crop growth while simultaneously limiting labor necessary on farms. While this innovation increased the productivity of farmers, it has come at a great cost to Americans’ health.

Between 1971 and 1972, crop failure in the Soviet Union initiated the purchase of nearly twenty-five percent of America’s wheat, which resulted in increased food prices in America. In response to the unexpected increase in pricing, President Nixon declared a “war on hunger” in 1973, and the Secretary of Agriculture Earl Butz adopted a strategy to produce cheap corn through the Agriculture and Consumer Protection Act of 1973. Nixon and Butz thought they could feed the world with cheap corn and wheat products. The Act stopped paying farmers to plant their land according to supply and demand, and began subsidizing crops by the bushel to reward production. Butz encouraged farmers to plant crops “fence row to fence row” and “adapt or die.”<sup>18</sup> Prices dropped, but the policies put in place by Butz also initiated a new era of manipulated and imbalanced supply and demand in agriculture. Production increased but so did Americans’ appetite for processed food made from the excess corn, wheat, soy, and dairy, as such products were now much cheaper than fruits and vegetables. Small family farms struggled

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<sup>18</sup> Paul Roberts, “Eating for Strength,” In *The End of Food*. Boston: Houghton Mifflin Company, 2008. 120

because the policy gave rise to today's behemoth industrial farms. To say that Butz's policy is responsible for this country's reliance on and addiction to cheap, nutritionally void food is an understatement.

Most recently, farmers were able to procure billions of dollars in funding from the Paycheck Protection Program. The \$46 billion in direct government payments to farmers in 2020 went mostly to the biggest agricultural food companies rather than struggling small farms. This broke the previous annual record by about \$10 billion, even after accounting for inflation.<sup>19</sup>

The Farm Bill, which is renewed every five to seven years, provides provisions for nutrition through programs like SNAP, crop insurance, conservation, rural investment, land access, and more. The current bill set to pass in 2023 focuses mostly on bolstering current subsidies to already over-bloated agribusinesses, while ignoring investment for long-term sustainability for America's agrarian class. 75% of the proposed 2023 bill goes to SNAP, and 10% is directed toward crop insurance. This leaves very little to support small farmers, education for regenerative practices, and research and implementation for conservation.

It is also wise to notice global trends pertaining to agriculture and farmers. Dutch farmers protested the Netherlands' government policy to halve the country's livestock to limit agriculture pollution. In a similar move, Sri Lanka's president Gotabaya Rajapaksa aimed to transform the nation's agriculture sector to 100% organic in 2020, and ordered a halt to all chemical fertilizers. This threw the country into massive food shortages, and the people revolted. The question remains how to transition land dominated by monocrop agriculture that ruins the health of the soil to more productive, flourishing farms without government overreach. Logic must be applied to conservationist ideology, or the U.S. will find itself in a similar position to the Netherlands and Sri Lanka.

## **Policy Problem**

Current agricultural policy incentivizes monocrop agriculture, an agricultural practice of growing a single crop year after year on the same land. This leads to an overproduction of crops such as corn, soy, and wheat. In turn, these products are used to create foods that are unhealthy and addictive, causing chronic illness that burdens America's healthcare system. It is also used as feed that is unnatural and unhealthy for livestock.

This is one of the biggest quandaries of our food system – altering the supply side of agriculture necessitates shifts in the demand side of food, and decreases the demand for food. American portion sizes are traditionally larger than what is necessary to sustain optimal health. The National Center for Health Statistics at the CDC showed in their most recent statistics that 42.4% of U.S. adults (defined as age 20 and older) were obese as of 2017–2018 (43% for men and 41.9% for women).<sup>20</sup> This statistic should be alarming for any policymaker. Despite a 1.5 trillion dollar “wellness market” (which, according to a McKinsey study, consists of better health, fitness, nutrition, appearance, sleep, and mindfulness biomarkers), Americans are still unhealthy.<sup>21</sup>

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<sup>19</sup>“2022 Farm Sector Income Forecast,” USDA ERS - Farm Sector Income Forecast, accessed October 23, 2022, <https://www.ers.usda.gov/topics/farm-economy/farm-sector-income-finances/farm-sector-income-forecast/>

<sup>20</sup> “Adult Obesity Facts,” Centers for Disease Control and Prevention (Centers for Disease Control and Prevention, May 17, 2022), <https://www.cdc.gov/obesity/data/adult.html>

<sup>21</sup> Shaun Callaghan et al., “Feeling Good: The Future of the \$1.5 Trillion Wellness Market,” McKinsey & Company (McKinsey & Company, January 27, 2022), <https://www.mckinsey.com/industries/consumer-packaged-goods/our-insights/feeling-good-the-future-of-the-1-5-trillion-wellness-market>.



Unfortunately, modern food is nutritionally void, but offers immediate satisfaction in the form of unhealthy fats, sugars, and carbohydrates. The current nutritional model, assessed by the FDA, is not an asset in changing America's addiction to highly processed foods. It promotes the overconsumption of unhealthy options, while dissuading people from making choices that are not only healthier but more sustainable. Two recent studies from France and Spain show that ultra-processed foods are associated with an increased risk of mortality and cardiovascular disease.<sup>22</sup> Most doctors and nutritionists agree on one thing: a diet with minimally processed foods and a moderate consumption of animal-based proteins, healthy fats, and more nutritious forms of carbohydrates such as fruits and vegetables is ideal for most people. Moderation is key, and American consumers are not fond of it.

Food and nutrition assistance programs make up the largest share of USDA expenditures, accounting for more than 73% of outlays in the fiscal year 2015. Approximately 11% of Americans receive supplemental assistance from the government.<sup>23</sup> Most of these people are trying to get as many calories as cheaply as possible. This means they consume high quantities of processed, cheap food with low nutritional value. Large expenditures in outlays that directly contribute to poor health could be better used to expand sustainable agriculture initiatives and educate consumers about the importance of a healthy diet.

Monocrop agriculture also necessitates frequent tilling or turning over of the soil, which disturbs the organic matter and exposes the soil to oxygen. Once it oxidizes, the carbon and the oxygen form CO<sub>2</sub>. While tilling is difficult to avoid altogether, especially for larger farms, its frequency and impact can be reduced.

Engineering crops in the form of GMOs, while helping to reduce crop destruction from insects, disease, and other natural disasters, have been proven to be harmful to human health. As shown in Table 1, GMOs' prevalence in farming has dramatically increased since their introduction in 1994; coincidentally, so has the rate of auto-immune disease. There is a strong correlation between the explosion of chronic diseases, such as cancers and autoimmune and neurogenic diseases, to the death of topsoil. It also promotes the monocrop environment that destroys soil health and, in the long-run, more vitamin-dense food. Genetically modified seeds account for over 90% of corn and soybean production.

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<sup>22</sup> Helen Thomson, "The Vegan Health Illusion." *New Scientist* 252 (3358), 2021: 38–41. <https://search-ebscohost-com.lib.pepperdine.edu/login.aspx?direct=true&AuthType=ip,url,uid,cookie&db=a9h&AN=153254481&site=ehost-live&scope=site>. (Accessed February 18<sup>th</sup>, 2023)

<sup>23</sup> "Food and Nutrition Assistance Programs Make up the Largest Share of USDA Outlays," USDA ERS - Chart Detail, accessed October 23, 2022, <https://www.ers.usda.gov/data-products/chart-gallery/gallery/chart-detail/?chartId=58294>.

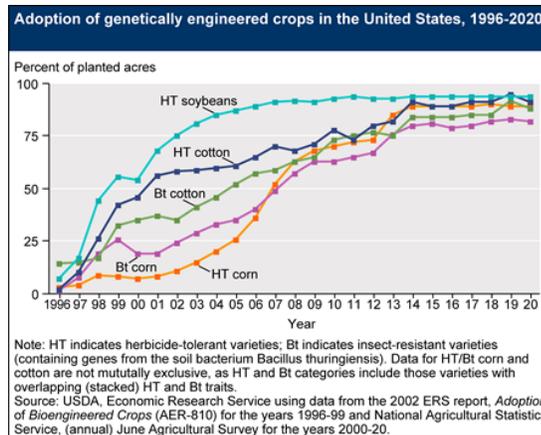


Table 1<sup>24</sup>

Many believe that engineered foods such as meat replacement products and ready-to-drink beverages are suitable nutritional substitutes that do not strain the environment. However, most of these products contain ingredients such as seed oils and soy and pea proteins that are detrimental to human health, and result in increased disease and toxicity. Additionally, these faux meat products are not always better for the environment. Artificial fertilizers account for at least 3% of global greenhouse gases and help speed up erosion. Overtilling of soil reduces its capacity to sequester carbon and releases large volumes of greenhouse gases into the atmosphere. Transporting fruit, vegetables and other grains used in vegan products has a large environmental impact. Joseph Poore, a researcher at the University of Oxford who studies the environmental impacts of food, warns, “it’s essential to be mindful about everything we consume: air-transported fruit and veg can create more greenhouse gas emissions per kilogram than poultry meat, for example.”<sup>25</sup>

### Food deserts

According to the USDA, the US Treasury, and Health and Human Services, a food desert is any low-income census tract with a substantial number or share of residents with low levels of access to retail outlets selling healthy and affordable foods.<sup>26</sup> Over eleven million people in the United States live in urban areas with “low access to a supermarket or large grocery store.”<sup>27</sup> These areas must be considered and addressed in any new or changed policy. However, the widely accepted notion of the environment being the sole determinant of health outcomes can and should be challenged.

<sup>24</sup> “Genetically engineered soybean, cotton, and corn seeds have become widely adopted,” USDA Economic Research Service. <https://www.ers.usda.gov/data-products/chart-gallery/gallery/chart-detail/?chartId=90362> (Accessed on February 18, 2023)

<sup>25</sup> Richard Gray. “Why the vegan diet is not always green,” BBC Future. February 13<sup>th</sup>, 2020. <https://www.bbc.com/future/article/20200211-why-the-vegan-diet-is-not-always-green?zephyr-modal-register> (Accessed February 18, 2023)

<sup>26</sup> “Mapping Food Deserts in the United States,” USDA ERS - Data Feature: Mapping Food Deserts in the U.S., accessed October 23, 2022, <https://www.ers.usda.gov/amber-waves/2011/december/data-feature-mapping-food-deserts-in-the-us/>

<sup>27</sup> Ibid.

## Regulatory Environment

Overall, the regulatory environment is lenient with monopoly agribusinesses when it should be more stringent, and too restrictive when it should offer more freedom and support to small family farms and independent growers. As PERC (Property and Environment Research Center), a Montana-based organization that promotes free market environmentalism, stated in their 2021 Annual Report, “one thing is certain: more regulation is not the best path forward.”<sup>28</sup>

The regulations needed to support farmers after WWII to expand agricultural output have continued past their necessity. An overabundance of nutrient-void food exists, and policy needs to conform to address the health crisis resulting from these outdated policies. The agricultural industries have been overregulated since the mid-1900s and have struggled to return to market equilibrium ever since.

The government has failed to regulate the seed, fertilizer, grain milling, livestock, and animal feed industries which hold monopolies, discouraging competition and raising prices to an unsustainable level for small farmers to stay in business. While it rejects its critics, Monsanto is a clear dominator in the seed industry through patents, mergers, product tying (such as Round Up, a product used to kill weeds sold with herbicide resistant seeds), and other anti-competitive actions.

Regulatory action against agricultural behemoths such as Cargill, ADM, and Bayer, as well as the largest seed companies in the world, has been unsuccessful. Tighter interpretations of the anti-trust laws need to be practiced in the agricultural industry to protect smaller farmers trying to compete in the marketplace. A report from the United States Justice Department on Antitrust and Agriculture Enforcement in 2007 closely examined activities of monopsony power, including collusion, price fixing, and mergers amongst top agents in the agricultural industry.<sup>29</sup> This signaled a commitment to stopping anticompetitive mergers or conduct from harming the agricultural marketplace, whether it is buyers or sellers who are harmed. These enforcements need to continue with vigilance. Price fixing is still common, particularly in the meat packing industry. For example, Tyson and Smithfield have both been protected from lawsuits under the “freedom of contract principle,” which states that everyone is free to participate in or opt-out of any contractual agreement. However, the share of this “freedom” in terms of food sovereignty is certainly asymmetrical. When the market price is controlled by an artificially low price created by a marketing agreement, farmers are not free from poverty. When marketing agreements are adopted by the majority of processors, and there are no alternative agreements offered, farmers are not free from opting out of unfair contracts. In effect, farmers are locked into receiving an unfair price for their product.<sup>30</sup> This type of inequality in the agriculture business prevents smaller farms from competing in the food supply market.

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<sup>28</sup> Brian Yablonski, “PERC 2021 Annual Report” (PERC, 2021), <https://www.perc.org/wp-content/uploads/2022/06/PERC-AR2021-FINAL-WEB-spreads.pdf>

<sup>29</sup> “Antitrust Enforcement And Agriculture,” Department of Justice, June 25, 2015, <https://www.justice.gov/atr/speech/antitrust-enforcement-and-agriculture-1>

<sup>30</sup> The Regulatory Review, “Breaking up Big AG Requires Reasonable Antitrust Enforcement,” The Regulatory Review, February 4, 2020, <https://www.theregreview.org/2019/12/26/kass-breaking-up-big-ag-antitrust-enforcement/>

## *Genetically Modified Organisms*

The majority of GMOs allowed in the United States are either partially or fully banned in 19 out of the 27 member state countries of the European Union.<sup>31</sup> Currently, more than 1,600 pesticides are on the market. In June of 2020, Bayer (now owner of Monsanto) agreed to pay over \$10 billion to settle claims of linking Round-Up (the most used pesticide) to cancer (specifically non-Hodgkin's Lymphoma), one of the largest settlements ever in U.S. civil litigation, while Bayer still faces at least 30,000 claims from plaintiffs who have not agreed to join the settlement.<sup>32</sup> There are no warning labels on Round-Up, nor are growers required to disclose pesticide treatments used on crops. The EPA denied approval for warning labels of glyphosate, despite mounting evidence that it is toxic and results not only in cancer but also in increased auto-immune diseases.

In addition, GMOs are used as a mechanism for monopoly in agriculture. U.S.-based Monsanto has unprecedented control over the sale and use of crop seeds through patents, mergers, and acquisitions of other seed companies and contracts requiring farmers to repurchase their seeds every year, not only in the U.S. but abroad. According to the Center For Food Safety, as of 2005, Monsanto filed 90 lawsuits against American farmers for the use of patented seeds, resulting in over \$15 million worth of recorded judgments in favor of Monsanto. Since the mid ninties, Monsanto has brought lawsuits to 144 farmers for alleged violations of their patented seed technology. More than 700 additional farmers have settled out of court rather than be saddled by debt from Monsanto's belligerent litigious actions.<sup>33</sup> Most of these farmers have no intention of saving and growing crops from Monsanto's patented seeds. These seeds and pollen can easily 'drift' into a neighboring farm and if the farmer does not have a contract with Monsanto, they can be found liable for patent infringement.

### *The Problem with "Organic"*

The use of harmful chemicals and lenient policy overseeing the companies that manufacture them has necessitated an abundance of policy to identify food grown without such harmful substances. Excessive labeling such as "organic," "non-GMO," and "gluten-free" has made choosing healthful foods confusing and costly.

Cost inflation of organic and GMO labels cause excessive paperwork and are unaffordable for most family farms. If they do pass the certification process, that cost is passed onto the consumer. Even larger corporate farms that could likely absorb the cost of certification into their profit/loss operations pass them on to consumers. This is why customers pay up to 50% more for food with an organic label on it, even if that food is not healthier. The USDA standards of organic are so low that most industrial farms can meet the requirements. It has turned the term

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<sup>31</sup> "News," European Green Capital Several European countries move to rule out GMOs Comments, accessed October 23, 2022, <https://ec.europa.eu/environment/europeangreencapital/countriesruleoutmos/>

<sup>32</sup> Bill Chappell, "Bayer To Pay More Than \$10 Billion To Resolve Cancer Lawsuits Over Weedkiller Roundup," *NPR*, June 24, 2020, <https://www.npr.org/2020/06/24/882949098/bayer-to-pay-more-than-10-billion-to-resolve-roundup-cancer-lawsuits>

<sup>33</sup> "Southern Exposure Seed Exchange, Saving the Past for the Future," Southern Exposure Seed Exchange, accessed October 23, 2022, <https://www.southernexposure.com/judge-sides-with-monsanto-ridicules-farmers-right-to-grow-food/>

“organic” from consumer protection into a marketing gimmick, at the expense of small farmers' and consumers' pocketbooks and health.

Windfall Farms, a successful biodynamic and sustainable operation in New York that services several high-end restaurants and farmer's markets in New York City, used to consider itself organic

“...before the United States Department of Agriculture began its national organic certification program. It set a lower standard than the original certifiers, allowing large industrial farms to be called "organic" while maintaining many unethical agricultural and labor practices. We no longer endorse the term, but still, endorse many organic farms and organizations that hold themselves to higher standards.”<sup>34</sup>

Their suggestion? “Don't trust the term "organic" to mean you are getting any combination of local, fresh, poison-free food, which incidentally is what we grow and sell.” Americans should be able to trust that their food is pesticide and chemical-free without extra labeling or marketing that makes healthy food a luxury good.

### *Excessive Land Regulation and Restrictive USDA Guidelines*

Regulations stifle private land ownership and agricultural growth. Farmers and private citizens alike are prevented from growing and selling food if they don't have proper certifications. Miller's Organic Farm, located in a remote Amish village in Pennsylvania, has been growing and selling fresh food (including eggs, raw milk, grass fed beef, and water buffalo) for almost 30 years, to about 4,000 private food club members who pay for high-quality, preservative-free whole foods. Amos Miller, the owner and operator, believes that this is the way food is supposed to be grown, “as God intended.” He believes that, “[c]orporate America is taking over and putting people in our government...they have the government on their side and they're making it harder for farmers to be farmers.”<sup>35</sup> In August 2022, a judge for the U.S. District Court for the Eastern District of Pennsylvania sent federal agents to the farm and demanded Amos cease operations. The government also issued more than \$300,000 in fines, which would put the farm out of business. This is because Amos is not using USDA approved fertilizers (he's not using *any* chemical fertilizers), herbicides, or patented seeds.<sup>36</sup>

This is exactly the kind of government overreach that makes small farmers and stewards of the land obsolete, leaving consumers with only factory-farmed and manufactured “frankenfood.” At the very least, farmers should be allowed to compete in a free market enterprise without government regulations stifling their businesses. The government should stop harassing small farmers for not complying with seed patents and attacking those who just want to, as Miller stated, “grow food the way God intended” to support themselves and their communities.<sup>37</sup>

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<sup>34</sup> (Windfall Farms, n.d.), <https://windfallfarm.blogspot.com/>.

<sup>35</sup> NewsHound, “Armed Federal Agents Attack Amish Farmer in PA for Selling Food without Preservatives,” Fulcrum7 (Fulcrum7, August 24, 2022), <https://www.fulcrum7.com/news/2022/8/23/armed-federal-agents-attack-amish-farmer-in-pa-for-selling-food-without-preservatives>

<sup>36</sup> Amos was originally charged by the FDA in 2016 after his raw milk was linked to a death in 2014 and he failed to meet animal slaughtering standards. However, he runs a private club in which consumers are aware of his farming practices and the inherent risk that comes with ingesting any sort of food obtained direct from a farm.

<sup>37</sup> NewsHound.

## Policy Goals

The overall goal of policy reform and the following recommendations is threefold. First, to become more self-reliant as a nation by securing the food supply chain to feed citizens. Second, to shift American food from a risk to an asset to human health. Third, to make healthy food accessible to the most amount of people without burdening the consumer with undo costs from overregulation.

Public and environmental health is at a crisis point. The health of the American public and the environment must take precedence over maximizing the profit of large agricultural conglomerates. Our healthcare system is not designed to sustain the current burden of poor nutrition, so while favorable fiscal impact must certainly be considered, higher upfront costs to invest in infrastructure and education may be necessary to mitigate disastrous long-term costs.

Returning the agricultural system to one that provides better health for citizens will simultaneously restore health to the earth and must be a priority. In doing so, the United States should attempt to mitigate the negative impact on current large-scale farmers while gradually shifting policy toward more sustainable solutions, to ensure that land can continue to provide safe and nutritious food for citizens.

Regenerative agriculture is a worthwhile investment to accomplish our environmental, health, and economic goals. How to thoughtfully transition from the large industrial farming model to more sustainable ways of growing food in a way that will not cause economic ruin or induce food shortages, however, is the challenge. Accessibility is key.

It is worth noting that honest and unbiased research is vital for intelligent policy decisions. Unfortunately, many studies and investigations into animal welfare and environmental and human health are tainted by larger societal moral concerns. This leads to the “distortion of information in the service of what may be perceived as righteous ends.”<sup>38</sup> Governmental funders are known to interfere with public good research by putting pressure on the impartiality of researchers.<sup>39</sup> Manipulation of data to fit with political concerns is particularly problematic when governmental health departments are heavily invested in health intervention and its associated policy advice. Such manipulation of public health research and initiatives stifles debate and nuance necessary to ascertain the best policy. As Frederic Leroy, a food scientist and founder of ALEPH2020 initiative, a site that offers up-to-date scientific information on animal sourced foods and livestock states: “It is of utmost importance to understand that the most suitable approaches to sustainable agriculture and food security will vary by context and cannot be structured into a unified global model.”<sup>40</sup>

Ultimately, policy – particularly federal policy – should do very little. Policymakers must cautiously begin to rollback subsidies that artificially bolster agribusinesses and support monopolistic food and chemical companies. In short, the government has adversely influenced

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<sup>38</sup> M B Cope and D B Allison, “White Hat Bias: Examples of Its Presence in Obesity Research and a Call for Renewed Commitment to Faithfulness in Research Reporting,” *International Journal of Obesity* 34, no. 1 (January 2009): pp. 84-88, <https://doi.org/10.1038/ijo.2009.239>.

<sup>39</sup> Sam McCrabb et al., “‘He Who Pays the Piper Calls the Tune’: Researcher Experiences of Funder Suppression of Health Behaviour Intervention Trial Findings,” *PLOS ONE* 16, no. 8 (2021), <https://doi.org/10.1371/journal.pone.0255704>.

<sup>40</sup> Frédéric Leroy et al., “Animal Board Invited Review: Animal Source Foods in Healthy, Sustainable, and Ethical Diets – an Argument against Drastic Limitation of Livestock in the Food System,” *animal* (Elsevier, February 11, 2022), <https://www.sciencedirect.com/science/article/pii/S1751731122000040?via%3Dihub>.

policy that is better left to market forces, and refuses to enforce the policies that it should. However, policymakers can use government investment to assist both farmers and the common citizen to become self-sufficient and active participants in the free market once again. The goal should be *self-sufficiency* rather than *sustainability*.

## **Policy Alternatives**

### *Reduce/Eliminate Current Agricultural Subsidies and Redirect Investments*

Like many subsidy programs, agricultural subsidies have long outlived their initial usefulness to temporarily sustain farming programs during difficult economic times in history. Ultimately the goal of subsidy redistribution should aim to make nutritionally abundant food such as fruit, vegetables, whole grains, nuts, seeds, and lentils less expensive than overprocessed food from highly subsidized categories. Currently, only 1% of all government subsidies are directed towards the production of fruits and vegetables, while the FDA recommends that most energy and nutrients come from this category of food.

Some believe America can – and should – feed the world with its surplus of corn, soy, wheat, and other crops by exporting to other countries. However, this position compromises other countries' ability to feed themselves and forces foreign farmers out of business. While global trade may lead to economic profits, it leaves people sicker and poorer, as America exports its processed foods to other parts of the world that otherwise would not produce such items. In the case of food, shortening the food supply and considering a value-based supply chain is the first step in cultivating a sustainable and healthy food source for American citizens.

Investment can be made toward encouraging and educating farmers on how to introduce regenerative agriculture techniques onto their farms. Regenerative agriculture takes a more systems-based, holistic look at the land and applies various principles with the goal of increased productivity and biodiversity over time. In most situations, improving soil health and function is the key to improving productivity and biodiversity. One of the key components of healthy soil is organic matter. For example, planting legumes in between other crops helps convert nitrogen from the air into fertilizer for the soil necessary for productive crop growth. Cow dung can also enrich soil. The proper management of livestock can assist these efforts and limit the need for nitrogen based, manufactured fertilizers. Cover cropping, enhancing biodiversity, and including many different animals on the farm are all techniques to restore health to the soil, the planet, and ultimately, humanity. Organizations such as *Kiss the Ground*<sup>41</sup>, along with many other individuals and farmers, are well-versed in the challenges and opportunities in American agriculture, and should be consulted when re-establishing food supply systems.

The government should contract more organizations and actual farmers to aid in education and outreach efforts to farmers across the country, to help them instill regenerative practices and restore the health of their soil. Members of the bureaucracy and “experts” do not know the day-to-day challenges of what it takes to be a successful farmer. Government should enlist the assistance of those who do, and ensure all farmers have access to such support. In addition, governments should financially make such education available, and encourage farmers to employ more regenerative principles through financial rewards. Funds currently utilized to bolster big ag companies can be reserved for those who seek assistance in transforming their farms to a more sustainable and environmentally friendly model.

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<sup>41</sup> <https://kisstheground.com/>

## *Urban Farming and Regional Cooperation with Farms*

Data from the most recent census report estimated that 80.7% of Americans, or 308 million individuals, now live in urban areas — a number that has grown by more than 12% over the past decade.<sup>42</sup> By 2050, 89% of the U.S. population and 68% of the world population is projected to live in urban areas.<sup>43</sup> This migration to the cities means fewer people available to tend to farms and more employment of technology to operate large farms that encourage monocrop agriculture. As a result, the skills and art of farming are lost. It is important to preserve traditional methodologies of farming and encourage crop rotation, regenerative agriculture, and grazing pastures. Simultaneously, policy can help encourage new methodologies of farming, like urban farming, and educate a new generation of farmers.

Creative solutions between the city dweller and the farmer on the outskirts of the city are arising across the country. More people are purchasing fresh fruit and vegetables through CSA (Community Supported Agriculture) programs and local farmers markets with produce provided by farms located within hours of the city to provide urban dwellers with fresh, healthy food. This type of regional sharing and production should be heavily encouraged and supported. It not only supports the local agriculture industry, but also reduces the amount of travel, and thus resources, required for food transport.

Vertical greenhouses are another way to ensure nutritious food is available to urban and food desert locations without excessive shipping of food across the country. There has not been sufficient research in this field to definitively promote vertical farming; however, it is a promising technology that may offer solutions to climate change, land usage, water demand, and food transportation. It may also offer the opportunity for over-tilled soil to regenerate, and provide an opportunity to put in place more sustainable methods of food production.

In addition, large cities, such as New York, have had success with increasing the number of community farms and encouraging residents to become active participants in their food culture. The city is home to over 600 community gardens, an estimated eighty percent of which grow fresh produce.<sup>44</sup> Vertical and rooftop farming, greenhouses, and green roofs are all promising alternatives to grow produce locally and help communities become more self-reliant and food secure. Policy should encourage the growth and maintenance of such endeavors while respecting neighborhood aesthetics. This will allow individuals to not only provide for themselves and their family, but to start businesses selling food to others and contributing to the local economy.

Urban agriculture offers a wide variety of advantages—improved nutrition, economic development, community engagement, improved mental health, environmental sustainability, and reduced crime and violence. Above all else, urban agriculture provides a means of community resiliency.<sup>45</sup> It allows communities to support themselves, making them more resistant to food crises and adaptable to external stresses of the food supply.

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<sup>42</sup> Urban Areas Facts, U.S. CENSUS BUREAU, <https://www.census.gov/programssurveys/geography/guidance/geo-areas/urban-rural/ua-facts.html> [https://perma.cc/A2DMVH3S] (last visited Aug.16, 2022)

<sup>43</sup> “U.S. Cities Factsheet,” Center for Sustainable Systems (University of Michigan), accessed October 23, 2022, <https://css.umich.edu/publications/factsheets/built-environment/us-cities-factsheet>.

<sup>44</sup> *Garden Search*, GREENTHUMB NYC, <http://www.greenthumbnyc.org/gardensearch.html>.

<sup>45</sup> Shinn, E. M. (2022). Property Rights and Urban Farming: Examining the Role of Restrictive Covenants on Urban Agriculture During Times of National Food Insecurity and Crisis in the United States. *Tulane Law Review*, 96(3), 503–530. p.512



## *Preserve Property Rights with Less Regulation and Encourage Private Land Ownership*

In an era where more people are highly suspicious of large agribusiness, the food supply chain and those who control it, there is an increasing trend of individuals using their property to grow their own food, becoming self-sufficient. These trends should be encouraged, as it will lessen the food burden while simultaneously encouraging more healthy eating habits.

Individuals cannot grow Fritos and Ding Dongs, but they can grow corn, tomatoes, kale, cucumbers, and other vegetables in backyards with basic knowledge and practical skills. Unfortunately, many citizens who take such steps towards sustainability are discouraged and even prevented from doing so. One couple near Orlando, FL unknowingly broke the law in 2012 when they decided to use their front yard for gardening vegetables. Their neighbors, who rented the property next door, complained their yard violated Orlando's Land Development Code 9 and filed a formal complaint with the city, citing failure to maintain proper ground cover of "a finished appearance with reasonably complete coverage."<sup>46</sup> The gardening neighbors refused to concede to demands to remove their garden claiming "right to garden." The city decided to drop the code-enforcement case after determining that the city's zoning ordinances were too vague to prove wrongdoing.

Citizens are becoming increasingly concerned about food security on their own and are taking measures to resolve the issue with private initiatives and solutions. This should not be discouraged, for it is exactly what we need to ensure a sustainable future for our health and the health of our planet. Regulations that restrict individuals from raising animals, cultivating produce, or selling it on their own lands should be limited. Land codes and local property zoning should be followed, but individuals and families should not be prevented from growing their own food on their property or even selling it. While the occasional cases of food borne illnesses do exist, such as the case with Amos Miller, they are not widespread and do not warrant over regulation and prosecution from the USDA. As with all public policy, lawmakers should be wary of trying to eliminate all risk with food regulation.

## *Eliminate Use of Glyphosate*

While there is good evidence that glyphosate, the main ingredient in popular weed killers such as Round-Up, contributes to a multitude of health maladies from cancer to IBS, it will be difficult to ban it outright. Millions of acres of farms currently rely on this chemical to produce sufficient crop growth. We can ease the burden on farmers by educating them on innovative but traditional farming techniques to begin to return health to the soil. A phase-out model can be employed for most small to medium farms that can more easily transition to a regenerative farming model to sustain harvests without the chemical. Like countries such as Mexico and Holland, the U.S. should set a goal to ban glyphosate use by all farms in a year that is feasible.

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<sup>46</sup> Emily M Shinn, "Property Rights and Urban Farming: Examining the Role of Restrictive Covenants on Urban Agriculture During Times of National Food Insecurity and Crisis in the United States," *Tulane Law Review* 96, no. 3 (February 2022): pp. 503-530, <https://doi.org/https://search-ebscohost-com.lib.pepperdine.edu/login.aspx?direct=true&AuthType=ip,url,uid,cookie&db=a9h&AN=156606774&site=ehost-live&scope=site>.

## *Change the Nutritional Education Paradigm*

Any changes in agricultural policy will be short-sighted without including policy to address consumer demand. Teaching smart food choices in our education systems is the best way to alter consumer demand. Vending machines should not be allowed in K-12 schools. A concerted effort should be made to teach children about how food is grown and to pique their curiosity about farming or, at the very least, have an understanding of food and nutrition. Home economics classes can be revitalized to teach how to cook healthy meals. These are skills that, while they may not contribute to the immediate economic well-being of a child's future, contribute to their health, making them a more productive and intelligent member of society. Like urban farming techniques, schools can build their own gardens, inspiring children to be invested in the food they eat. This builds responsibility, connection to the land, and healthy eating habits.

The growing mistrust of government and record inflation has had surprisingly positive effects on the habits of consumers. While it was underground news for some time, the fact that Covid deaths were directly correlated to obesity is now mainstream understanding. More people are concerned with making their dollar count, which has forced investment in more nutritious food and less junk food. Food shortages have prompted people to investigate their cause and become educated on the food supply chain and its current weaknesses. The United States' over-reliance on foreign nations for chemical fertilizers and other agricultural inputs has become apparent. More and more independent medical practitioners are speaking out against GMOs and pesticides. Education has and always will be people's best defense of their own health.

Consumers are increasingly savvy about purchasing produce and meat products from local producers and farmers. More and more people choose to reduce spending on overly costly luxury health goods and utilize more of their dollars to purchase food locally from farmers, even if it may be slightly more expensive. This is good news for consumers who have access to such options. Feeding citizens via more local channels, particularly in areas that do not have access to healthy alternatives, can bolster supply chains and create a healthier society for all.

## **Conclusion**

Resolving almost a century of poor agricultural planning and reversing ineffectual government policy will not be easy. Policy makers must approach human and environmental health concerns in realistic ways. Government can help support farmers who want to transition to more sustainable ways to grow food without making them dependent on subsidies to maintain their farmland or subjecting them to violations in patent law. In order to do this, agricultural corporations have to be de-coupled from government policy. Policy should be reduced when it comes to land ownership and welfare to support those who are looking for ways to grow their own food and support their nutrition needs. The United States has to start considering more regional closed supply chains. This will decrease the need for huge agribusiness products and help farmers and individuals cooperate to feed themselves and their families. In addition, urban agriculture alternatives ought to be researched and developed.

We can support the nutritional needs of our country with proper education and creative and innovative solutions. Not every industry is suited to industrialization. Agriculture is one of those industries. Given the health crisis in America, we can no longer afford to continue on a

path of processed foods and the industrial farming that produces it. We must return to the wisdom of the land and the people who know how to cultivate it.

## Bibliography

- “2022 Farm Sector Income Forecast.” USDA ERS - Farm Sector Income Forecast. Accessed October 23, 2022. <https://www.ers.usda.gov/topics/farm-economy/farm-sector-income-finances/farm-sector-income-forecast/>.
- “Adult Obesity Facts.” Centers for Disease Control and Prevention. Centers for Disease Control and Prevention, May 17, 2022. <https://www.cdc.gov/obesity/data/adult.html>.
- “AG and Food Sectors and the Economy.” USDA ERS - Ag and Food Sectors and the Economy, February 24, 2022. <https://www.ers.usda.gov/data-products/ag-and-food-statistics-charting-the-essentials/ag-and-food-sectors-and-the-economy/>.
- “AG and Food Sectors and the Economy.” USDA ERS - Ag and Food Sectors and the Economy. Accessed October 22, 2022. <https://www.ers.usda.gov/data-products/ag-and-food-statistics-charting-the-essentials/ag-and-food-sectors-and-the-economy/>.
- “California Policy.” American Farmland Trust, May 4, 2022. <https://farmland.org/project/capolicy/>.
- Callaghan, Shaun, Martin Lösch, Anna Pione, and Warren Teichner. “Feeling Good: The Future of the \$1.5 Trillion Wellness Market.” McKinsey & Company. McKinsey & Company, January 27, 2022. <https://www.mckinsey.com/industries/consumer-packaged-goods/our-insights/feeling-good-the-future-of-the-1-5-trillion-wellness-market>.
- Chappell, Bill. “Bayer To Pay More Than \$10 Billion To Resolve Cancer Lawsuits Over Weedkiller Roundup.” *NPR*, June 24, 2020. <https://www.npr.org/2020/06/24/882949098/bayer-to-pay-more-than-10-billion-to-resolve-roundup-cancer-lawsuits>.
- Cope, M B, and D B Allison. “White Hat Bias: Examples of Its Presence in Obesity Research and a Call for Renewed Commitment to Faithfulness in Research Reporting.” *International Journal of Obesity* 34, no. 1 (2009): 84–88. <https://doi.org/10.1038/ijo.2009.239>.
- Department of Justice. “Antitrust Enforcement And Agriculture,” June 25, 2015. <https://www.justice.gov/atr/speech/antitrust-enforcement-and-agriculture-1>.
- “Factory Farm Definition & Meaning.” Merriam-Webster. Merriam-Webster. Accessed October 23, 2022. <https://www.merriam-webster.com/dictionary/factory%20farm>.
- “Farming and Farm Income.” USDA ERS - Farming and Farm Income, September 1, 2022. <https://www.ers.usda.gov/data-products/ag-and-food-statistics-charting-the-essentials/farming-and-farm-income/>.
- “Farms for a New Generation in California.” American Farmland Trust, July 25, 2022. <https://farmland.org/project/farms-for-a-new-generation-in-california/>.
- “Food and Nutrition Assistance Programs Make up the Largest Share of USDA Outlays.” USDA ERS - Chart Detail. Accessed October 23, 2022. <https://www.ers.usda.gov/data-products/chart-gallery/gallery/chart-detail/?chartId=58294>.
- Gray, Richard. “Why the vegan diet is not always green,” *BBC Future*. February 13<sup>th</sup>, 2020. <https://www.bbc.com/future/article/20200211-why-the-vegan-diet-is-not-always-green?zephir-modal-register>
- Layman, Donald K. “Assessing the Role of Cattle in Sustainable Food Systems.” *Nutrition Today* 53, no. 4 (2018): 160–65. <https://doi.org/10.1097/nt.000000000000286>.
- Leroy, Frédéric, and Robyn Alders. “Animal Source Foods in Ethical, Sustainable & Healthy Diets.” *Animal source foods in ethical, sustainable & healthy diets*, 2020. <https://aleph-2020.blogspot.com/>.

- Leroy, Frédéric, Fabien Abraini, Ty Beal, Paula Dominguez-Salas, Pablo Gregorini, Pablo Manzano, Jason Rowntree, and Stephan van Vliet. “Animal Board Invited Review: Animal Source Foods in Healthy, Sustainable, and Ethical Diets – an Argument against Drastic Limitation of Livestock in the Food System.” *animal*. Elsevier, February 11, 2022. <https://www.sciencedirect.com/science/article/pii/S1751731122000040?via%3Dihub>.
- Mantadakis E, Chatzimichael E, Zikidou P. Iron Deficiency Anemia in Children Residing in High and Low-Income Countries: Risk Factors, Prevention, Diagnosis and Therapy. *Mediterr J Hematol Infect Dis*. 2020 Jul 1;12(1):e2020041. doi: 10.4084/MJHID.2020.041. PMID: 32670519; PMCID: PMC7340216.
- “Mapping Food Deserts in the United States.” USDA ERS - Data Feature: Mapping Food Deserts in the U.S. Accessed October 23, 2022. <https://www.ers.usda.gov/amber-waves/2011/december/data-feature-mapping-food-deserts-in-the-us/>.
- McCrabb, Sam, Kaitlin Mooney, Luke Wolfenden, Sharleen Gonzalez, Elizabeth Ditton, Serene Yoong, and Kypros Kypri. “‘He Who Pays the Piper Calls the Tune’: Researcher Experiences of Funder Suppression of Health Behaviour Intervention Trial Findings.” *PLOS ONE* 16, no. 8 (2021). <https://doi.org/10.1371/journal.pone.0255704>.
- “News.” European Green Capital Several European countries move to rule out GMOs Comments. <https://ec.europa.eu/environment/europeangreencapital/countriesruleoutgmos/>.
- NewsHound. “Armed Federal Agents Attack Amish Farmer in PA for Selling Food without Preservatives.” *Fulcrum7*. Fulcrum7, August 24, 2022. <https://www.fulcrum7.com/news/2022/8/23/armed-federal-agents-attack-amish-farmer-in-pa-for-selling-food-without-preservatives>.
- O’Keefe, Eric. “Bill Gates: America’s Top Farmland Owner.” *The Land Report*, August 31, 2022. <https://landreport.com/2022/08/farmer-bill/>.
- The Regulatory Review. “Breaking up Big AG Requires Reasonable Antitrust Enforcement.” *The Regulatory Review*, February 4, 2020. <https://www.theregreview.org/2019/12/26/kass-breaking-up-big-ag-antitrust-enforcement/>.
- Samuels, Alana. “They’re Trying to Wipe Us Off the Map: Small American Farmers Are Nearing Extinction,” *TIME* [https://time.com/5736789/small-american-farmers-debt-crisis-extinction/?utm\\_source=newsletter&utm\\_medium=email&utm\\_campaign=the-brief-farmers-debt&utm\\_content=20191130](https://time.com/5736789/small-american-farmers-debt-crisis-extinction/?utm_source=newsletter&utm_medium=email&utm_campaign=the-brief-farmers-debt&utm_content=20191130).
- Shahbandeh, M. “Market Value of Plant Protein Worldwide 2020-2027.” *Statista*, September 14, 2022. <https://www.statista.com/statistics/658619/global-plant-protein-market-value/>.
- Shinn, Emily M. “Property Rights and Urban Farming: Examining the Role of Restrictive Covenants on Urban Agriculture During Times of National Food Insecurity and Crisis in the United States.” *Tulane Law Review* 96, no. 3 (February 2022): 503–30. <https://doi.org/https://search.ebscohost.com.lib.pepperdine.edu/login.aspx?direct=true&AuthType=ip,url,uid,cookie&db=a9h&AN=156606774&site=ehost-live&scope=site>.
- “Southern Exposure Seed Exchange, Saving the Past for the Future.” Southern Exposure Seed Exchange. Accessed October 23, 2022. <https://www.southernexposure.com/judge-sides-with-monsanto-ridicules-farmers-right-to-grow-food/>.
- Teague, W. R., S. Apfelbaum, R. Lal, U. P. Kreuter, J. Rowntree, C. A. Davies, R. Conser, et al. “The Role of Ruminants in Reducing Agriculture’s Carbon Footprint in North America.” *Journal of Soil and Water Conservation* 71, no. 2 (2016): 156–64. <https://doi.org/10.2489/jswc.71.2.156>.

“U.S. Cities Factsheet.” Center for Sustainable Systems. University of Michigan. Accessed October 23, 2022. <https://css.umich.edu/publications/factsheets/built-environment/us-cities-factsheet>.

Web log. Windfall Farms, n.d. <https://windfallfarm.blogspot.com/>.

Yablonski, Brian. “PERC 2021 Annual Report.” PERC, 2021. <https://www.perc.org/wp-content/uploads/2022/06/PERC-AR2021-FINAL-WEB-spreads.pdf>.

Zhang, Luoping, Iemann Rana, Rachel M. Shaffer, and Emanuela Taioli. “Exposure to Glyphosate-Based Herbicides and Risk for Non-Hodgkin Lymphoma: A Meta-Analysis and Supporting Evidence.” *Mutation Research/Reviews in Mutation Research* 781 (September 2019): 186–206. <https://doi.org/10.1016/j.mrrev.2019.02.001>.