# Resolved: In the United States, the benefits of increasing organic agriculture outweigh the harms.

#### Overview:

As people have begun to pay more attention to the effects and risks of climate change, many have begun to look for ways to shift to more sustainable practices. The increasing consumption of organic agricultural products is one such example. Many consumers and farmers believe that organic agriculture is better for the environment and more sustainable, although a potentially flawed 2018 study calls this into question.

Organic agriculture is characterized by its lack of synthetic chemicals. Instead, it relies on natural techniques to produce food and ward off pests. Its plant products do not contain GMOs, and its animal products must be fed organic feed and be free from most anti-biotics. These conditions have prompted many consumers to favor organic produce for potential health, safety, and environmental benefits.

The main argument in this debate will surround the environmental impact of increasing organic agriculture. Research and environmental science has shown that organic agriculture has many benefits for the environment. It protects biodiversity, pollutes less, refrains from using toxic chemicals, and it allows for better carbon sequestration. However, some research has shown that organic agriculture is worse for the environment. Because it requires more land to produce the same amount of food, it actually leaves the climate worse off.

Other than the environment, health and economic factors will be the main themes in debates about organic agriculture. While organic foods may not have much increased nutritional value, they are free from antibiotics and pesticides, protecting the health of consumers and workers. Economically, increasing organic agriculture may be a flawed approach. First, by requiring more land to produce less food, this action would lead to a reduction in food production and thus an increase in prices, harming many low income Americans. Furthermore, the agricultural industry has faced a decades-long shortage of workers that was exacerbated by the COVID-19 pandemic. Organic farms require more workers, but these workers are hard to find.

#### Additional Sources:

<https://www.epa.gov/agriculture/organic-farming#:~:text=%22Organically%20grown%22%20food%20is%20food,in%20producing%20organically%20grown%20food>.

<https://www.fao.org/organicag/oa-faq/oa-faq1/en/>

https://nifa.usda.gov/topic/organic-agriculture

<https://downeast.com/land-wildlife/how-the-organic-farming-revolution-changed-maine-for-the-better/>

<https://www.foodsafetynews.com/2022/02/usda-announces-public-comment-session-for-input-on-organic-program/>

<https://civileats.com/2022/02/14/what-is-the-future-of-organic/>

<https://www.forbes.com/sites/sap/2022/02/02/indoor-vertical-farming-has-a-big-role-in-sustainable-agriculture/>

<https://www.acsh.org/news/2022/02/01/200-million-price-sri-lankas-botched-all-organic-farming-scheme-16098>

<https://www.sandiegouniontribune.com/opinion/commentary/story/2022-02-25/organic-fruits-vegetables-healthier>

<https://www.sltrib.com/news/2022/02/25/how-worms-corn-poop-could/>

# Pro

#### We stand in affirmation of the following:

In the United States, the benefits of increasing organic agriculture outweigh the harms.

### Definitions

#### Organic agriculture

UC Davis Health 19

UC Davis Health, “Are organic foods really healthier? Two pediatricians break it down”, April 5, 2019, https://health.ucdavis.edu/blog/good-food/are-organic-foods-really-healthier-two-pediatricians-break-it-down/2019/04

The U.S. Department of Agriculture defines organic as crops that are produced on farms that have not used most synthetic pesticides herbicides or fertilizer for three years before harvesting the food. There needs to be a significant buffer zone to decrease contamination from adjacent farm lands. Farms also have to be free from any genetic engineering, ionizing radiation or sewage sludge (yuck). And as it relates to livestock, animals must be fed organic feed, live on organic land and be raised without routine antibiotics or hormones. Free range doesn’t mean organic; it just means animals weren’t kept in such small enclosures. Also, the “natural” label on food means there’s no artificial flavoring or color ingredients, but that doesn’t mean it’s organic or free of pesticides.

### Framework

#### Cost benefit analysis

The framing for today’s round ought to be cost benefit analysis. If we demonstrate that increasing organic agriculture in the United States produces more good than harm, we should win the round.

### Contention 1: Carbon Emissions

#### Through carbon sequestration, organic agriculture is a helpful tool to fight carbon emissions and climate change.

Shade et al 21

Jessic Shade (PhD, researcher for the Organic Center), Amber Sciligo (PhD, researcher for the Organic Center), Robert Crystal-Ornelas (PhD, Researcher for the Lawrence Berkeley National Laboratory), and Kate Tully (PhD, Professor at the Univsersity of Maryland), The Organic Center, “Maximizing Carbon Sequestration in Organic Systems”, March 8, 2021, https://www.organic-center.org/sites/default/files/Soil/the\_organic\_center\_carbon\_sequestration.pdf

While the situation may sound dire, this also means that we have a great opportunity to reduce the food system’s contribution to climate change by using farming practices that reduce GHG emissions and draw carbon back into the soil. These practices include reducing tillage, pesticide use, and reliance on synthetic fertilizer (ammonium nitrate). When carbon is stored in the ground for both the short and long term, it not only helps mitigate climate change, it also improves the soil structure which: Reduces erosion Reduces compaction Improves aeration, filtration and water holding capacity Provides a reserve of essential nutrients for plants Supports soil organisms by providing a food source which in turn helps fight soil borne diseases and supports more above ground diversity. The Organic Center partnered with the National Soil Project at Northeastern University to explore how organic farming impacts carbon sequestration in the soil and found that not only do organic farms store more soil carbon in general, but they also store more of the type of carbon that stays in the ground for longer periods of time. By analyzing over a thousand soil samples from organically and conventionally managed from across 48 U.S. states, this ground-breaking work found that organic soils had 13% higher soil organic matter and 44% higher long-term carbon storage than conventionally managed soils. These results highlight the potential of organic agriculture to increase the amount of carbon sequestration in the soil, contributing to climate change mitigation.

#### Organic farming uses less energy, reducing the environmental harms associated with producing food.

Zimmerman 20

Naomi Zimmerman (Environmental Science and Economics student at Barnard), Columbia Climate School, “So, Is Organic Food Actually More Sustainable?”, February 5, 2020, https://news.climate.columbia.edu/2020/02/05/organic-sustainable-food/

Using renewable energy and reducing waste are featured prominently in the media, dominating the popular environmental discourse and leaving food systems sorely overlooked. But in my sustainable development class, I was shocked to learn that food systems are the largest contributor to environmental degradation. The production, transportation, and consumption of food on a planet containing over 7 billion people is incredibly carbon intensive. Agriculture contributes to a third of the global greenhouse gas (GHG) emissions due to land conversion. Additionally, global food output is expected to double by 2050. With such high stakes, we need to look beyond the labels and choose systems of food production that are the most sustainable. For me, this journey starts with the questions: What is organic food? How is it produced? And is it really more sustainable than conventional agriculture? Organic food is grown without synthetic inputs such as chemical pesticides or synthetic fertilizers. Organic farms instead use natural approaches and fertilizers, such as crop rotation and manure, to control pests, diseases and weeds. This minimizes the exposure of farm workers, consumers, and the environment more broadly to harmful pesticides. When used in conventional agriculture, pesticides and fertilizers can create a host of environmental issues. Certain pesticides can poison non-target organisms such as birds, fish, and plants, and harm organisms of special ecological importance, such as bees and algae. Pesticides also often contaminate soil as well as surface and groundwater. A United States Geological Service study found that over 90 percent of water and fish samples from streams contained one or more pesticides. Fertilizers that run off into streams and other waterways cause eutrophication—a process in which excess nitrogen and phosphorous buildups lead to algal blooms and excess production of carbon dioxide. The process results in acidic waterways with dead zones, or areas that are so low in oxygen that they kill marine life. Since it does not include the use of synthetic pesticides or fertilizers, organic agriculture is very sustainable in many aspects. Organic farms tend to have more fertile soil, use less energy, and sequester more carbon. Research has shown that organic farms use 45 percent less energy, release 40 percent less carbon emissions, and foster 30 percent more biodiversity compared to conventional farming.

### Contention 2: Biodiversity

#### Organic agriculture protects biodiversity.

Bavec & Bavec 14

Martina Bavec (Professor in the Agriculture and Life sciences department at University of Maribor) and Franc Bavec (Chair of Organic Farming, field crops, vegetables, and ornamental crops at University of Maribor) , Biodiversity in Ecosystems, “Impact of Organic Farming on Biodiversity”, August 21, 2014, https://www.intechopen.com/chapters/47462

The analysed data showed that in the past decades, the specialization and intensification of agriculture production methods have had negative effects on biodiversity. The future holds the challenge of designing more sustainable farming systems that are productive and maintain or enhance the provision of ecosystem services, including biodiversity. The significantly positive effect of organic farming on biodiversity compared to conventional farming was noticed in 80% of cases; in 16%, differences were unclear and less biodiversity was found in 4% of comparisons [15, 17, 18], where seven to 10 biodiversity indicators were taken into account. Small farms in particular may have an indirect positive effect on biodiversity. These farms generally have smaller land parcels and thus more field edges, which are relatively species-rich. We can conclude that the benefits of organic farming on biodiversity are as follows: Organic farming increased species richness by about 30% and had a greater effect on biodiversity, as the percentage of the landscape consisting of arable fields increased. It was found that organic fields had up to five times higher plant species richness compared to conventional fields. For example, plant and butterfly species richness was up to 20% higher on organic farms and butterfly abundance was about 60% higher. After the conversion from conventional to organic farming abundance of butterflies was increased for 100%. Organic farming enhanced arbuscular mycorrhizal fungi and its communities. This was similar in organically managed fields and in semi-natural species rich grasslands, but significantly fewer communities were found in conventionally managed fields. Their richness increased significantly over time from the point of a conversion to organic agriculture. The occurrence of weed species was significantly higher in the organic production of white cabbage and red beet compared to integrated and conventional production. The biodiversity index was significantly higher in organic production compared to the conventional method, 0.86 vs. 0.66 for cabbages and 0.81 vs. 0.59 for red beets. Conventional and integrated production systems tended to be similar both in terms of the intensity of management and regarding within-field biodiversity; however, organic production tended to support greater density, species number and biological diversity compared to other investigated production systems. Earthworms were more abundant on organically managed fields. In organic and biodynamic farming plots, the number of earthworms was on average two times higher compared to integrated, conventional and control plots. Biodiversity as one of the most important ecosystem services of organic farming is firmly connected to biocontrol and pollination services, which are enhanced when using no or less chemicals. The abundance of cereal aphids was five times lower in organic fields, while predator abundances were 20 times higher in organic fields, indicating a significantly higher potential for biological pest control in organic fields. Organic fields had 20 times higher pollinator species richness compared to conventional fields. Pollinators and predator abundance was higher at field edges compared to field centres, highlighting the importance of field edges for ecosystem services. Edges provide important nesting, feeding and sheltering sites for birds in agricultural areas. Thus, organic farming enhances farmland birds. Overall, organic agriculture appears to perform better than conventional farming and provides important environmental advantages such as halting the use of harmful chemicals and their spread in the environment and along the trophic chain, reducing water use, as well as reducing carbon and ecological footprints. As we have underscored, organic farming fulfils the promise to protect biodiversity better than conventional farming. However, in the European commission document, The EU Biodiversity Strategy to 2020 [1], organic farming is not even mentioned, while in the European Parliament resolution regarding the strategy [6], organic farming is mentioned only once in the context of a call for a strengthening of Pillar II and for drastic improvements to the environmental focus of that pillar, and to the effectiveness of its agri-environmental measures. Supporting farmers to convert their properties to organic land and to maintain organic farming within the scope of agri-environmental schemes as a part of Common agriculture policy can have a significant impact on biodiversity as a result of management decisions farmers apply to their agricultural land.

#### There are many benefits to conserving biodiversity.

EPA 21

United States Environmental Protection Agency (EPA), “EnviroAtlas Benefit Category: Biodiversity Conservation”, September 14, 2021, https://www.epa.gov/enviroatlas/enviroatlas-benefit-category-biodiversity-conservation#:~:text=The%20benefits%20of%20conserving%20biodiversity,to%20cope%20with%20environmental%20stressors.

Biodiversity supports food security and sustained livelihoods through overall genetic diversity. ​Genes regulate all biological processes on the planet and increase the ability of organisms to cope with environmental stressors. Preserving genetic diversity ensures the continuing existence of a wide-range of crops that may be able to withstand disease, and potentially useful biochemicals such as those used in healthcare. It also means availability of species for pollination and pest control. Losses in genetic diversity will decrease organisms' coping ability and risk losing potentially beneficial biological information3. Biodiversity has greatly contributed to modern medicine and advancements in human health research and treatment. Many modern pharmaceuticals are derived from plant species, including the anti-tumor agent Taxol from the Pacific yew tree, the anti-malarial artemisinin from sweet wormwood, and the cardiac drug digoxin from the digitalis plant. Pharmaceuticals can also be derived from non-plant species, such as the drug ziconotide, which has been highly effective in relieving nerve pain and severe pain in cancer patients and is derived from the venom of predatory cone snails4. Without the species that provide these drugs, it is possible that treatments for ailments like malaria, tuberculosis, cancerous tumors, congestive heart failure and multiple other illnesses may never have been discovered. As conversion of habitats and subsequent losses in diversity take place, the potential for losing cures for some of the world's most troubling ailments increases. In addition to the many medicinal benefits from biodiversity, human health can be positively affected simply by spending time in outdoor environments, which has been linked to increases in life satisfaction and happiness, and decreases in blood pressure, anxiety, and cardiovascular disease symptoms. Conserving biodiversity and protecting a wide range of habitats maintains the many benefits that this diversity provides for all species. Highly diverse environments, such as Yellowstone National Park, are prime ecosystems that support many species in addition to being aesthetically beautiful, educational, and interesting recreation sites. Biodiversity conservation efforts are essential in maintaining functioning ecosystems, a steady food supply, and the multiple other benefits including aesthetics, recreation, and spiritual purposes to Native American tribal nations

### Contention 3: Public Health

#### Organic food produces positive health effects for consumers.

Mie 17

Axel Mie et al (Professor at the Karolinska Institutet), Environmental Health, “Human health implications of organic food and organic agriculture: a comprehensive review”, October 27, 2017, https://ehjournal.biomedcentral.com/articles/10.1186/s12940-017-0315-4

An assessment of the human health effects associated with diets based on organic food production must rely on two sets of evidence. The first set of evidence is the epidemiological studies comparing population groups with dietary habits that differ substantially in regard to choices of organic v. conventional products. These studies are to some extent complemented by experimental studies using animal models and in vitro models. The second set of data relies on indirect evidence such as chemical analyses of food products and their contents of nutrients and contaminants or antibiotic use and resistance patterns, in onsequence of agricultural production methods. Both sets of results are associated with certain strengths and weaknesses. The few human studies that have directly investigated the effects of organic food on human health have so far yielded some observations, including indications of a lower risk of childhood allergies, adult overweight/obesity [18, 46] and non-Hodgkin lymphoma (but not for total cancer) [37] in consumers of organic food. Owing to the scarcity or lack of prospective studies and the lack of mechanistic evidence, it is presently not possible to determine whether organic food plays a causal role in these observations. However, it has also been observed that consumers who prefer organic food have healthier dietary patterns overall, including a higher consumption of fruit, vegetables, whole grains, and legumes and a lower consumption of meat [18, 29, 37]. This leads to some methodological difficulties in separating the potential effect of organic food preference from the potential effect of other associated lifestyle factors, due to residual confounding or unmeasured confounders. These dietary patterns have in other contexts been associated with a decreased risk of several chronic diseases, including diabetes and cardiovascular disease [30,31,32,33,34,35,36]. It is therefore expected that consumers who regularly eat organic food have a decreased risk of these diseases compared to people consuming conventionally-produced food, as a consequence of dietary patterns. These dietary patterns appear also to be more environmentally sustainable than average diets [254]. Food analyses tend to support the notion that organic foods may have some health benefits. Consumers of organic food have a comparatively low dietary exposure to pesticides. Although chemical pesticides undergo a comprehensive risk assessment before market release in the EU, there are important gaps in this risk assessment. In some cases, specifically for cognitive development during childhood as an effect of organophosphate insecticide exposure during pregnancy, epidemiological studies provide evidence of adverse effects [140, 255]. Organic agriculture allows for lower pesticide residues in food and may be instrumental in conventional agriculture’s transition towards integrated pest management by providing a large-scale laboratory for non-chemical plant protection. This review emphasizes that pesticide exposure from conventional food production constitutes a main health concern. A key issue that has only recently been explored in biomedical research is that early-life exposure is of major concern, especially prenatal exposure that may harm brain development. Most insecticides are designed to be toxic to the insect nervous system, but many higher species depend on similar neurochemical processes and may therefore all be vulnerable to these substances [129]. Besides insecticides, experimental studies suggest a potential for adverse effects on the nervous system for many herbicides and fungicides as well [99]. However, no systematic testing is available since testing for neurotoxicity – especially developmental neurotoxicity – has not consistently been required as part of the registration process, and allowable exposures may therefore not protect against such effects. At least 100 different pesticides are known to cause adverse neurological effects in adults [129], and all of these substances must therefore be suspected of being capable of damaging also developing brains. The need for prevention of these adverse outcomes is illustrated by the recent cost calculations [140] and the additional risk that pesticide exposures may lead to important diseases, such as Parkinson’s disease, diabetes and certain types of cancer. The outcomes in children and adults and the dose-dependences are still incompletely documented, but an additional limitation is the lack of exposure assessments in different populations and also their association with dietary habits. The costs from pesticide use in regard to human health and associated costs to society are likely to be greatly underestimated due to hidden and external costs, as recently reviewed [256]. Also, gaps in the regulatory approval process of pesticides may lead to important effects being disregarded and remaining undetected. In regard to nutrients, organic dairy products, and probably also meat, have an approximately 50% higher content of omega-3 fatty acids compared to conventional products. However, as these products only are a minor source of omega-3 fatty acids in the average diet, the nutritional significance of this effect is probably low (although this has not been proven). The nutritional content of crops is largely unaffected by the production system, according to current knowledge. Vitamins and minerals are found in similar concentrations in crops from both systems. One exception is the increased content of phenolic compounds found in organic crops, although this is still subject to uncertainty despite a large number of studies that have addressed this issue. Accordingly, although in general being favourable for organic products, the established nutritional differences between organic and conventional foods are small, and strong conclusions for human health cannot currently be drawn from these differences. There are indications that organic crops contain less cadmium compared to conventional crops. This is plausible, primarily because mineral fertiliser is an important source of cadmium in soils. However, notably, long-term farm pairing studies or field trials that are required for definitely establishing or disproving this relationship are lacking. Owing to the high relevance of cadmium in food for human health, this lack of research constitutes an important knowledge gap. With respect to the development of antibiotic resistance in bacteria, organic animal production may offer a way of restricting the risks posed by intensive production, and even decreasing the prevalence of antibiotic resistance. Organic farm animals are less likely to develop certain diseases related to intensive production compared to animals on conventional farms. As a consequence, less antibiotics for treating clinical diseases are required under organic management, where their prophylactic use also is strongly restricted. This decreases the risk for development of antibiotic resistance in bacteria. Furthermore, the transparency in organic production may be useful for acquiring knowledge and methods to combat the rising issues around transmission of antimicrobial resistance within food production. It appears essential that use of antibiotics in animal production decreases strongly or completely ceases in order to decrease the risk of entering a post-antibiotic era. The development and upscaling of rearing systems free or low in antibiotic use, such as organic broiler production, may be an important contribution of organic agriculture to a future sustainable food system.

#### Non-organic agriculture pollutes waters, harming public health.

FoodPrint 19

FoodPrint (a public awareness project of GRACE Communications Foundation), “How Industrial Agriculture Affects Our water”, September 18, 2019, https://foodprint.org/issues/how-industrial-agriculture-affects-our-water/#easy-footnote-bottom-1-7652

Industrial agriculture is one of the leading causes of water pollution in the United States. 1 According to the 2017 National Water Quality Inventory of Environmental Protection Agency (EPA), 46 percent of the nation’s rivers and streams are in “poor biological condition,” and 21 percent of lakes are “hypereutrophic” (meaning that high levels of nutrients and algae are degrading water quality). 2 Water pollution from industrial agriculture can have many negative effects on both people and the environment. High levels of “nutrients,” such as phosphorus and nitrogen (both components of synthetic fertilizer as well as byproducts of animal waste) threaten the health and biological diversity of waterways, which can result in loss of aquatic life and their habitats, shellfish contamination and seasonal dead zones. 3 Polluted water also impacts the quality of life and incomes of nearby residents, posing a threat to public health. Beaches may close due to algal blooms, and fishing activities may be severely limited. Excessive nutrient runoff in waterways can impact drinking water supplies and, in some cases, cause severe health problems. 45 What Are the Sources of Water Pollution from Agriculture? Industrial Animal Agriculture Concentrated animal feeding operations (CAFOs), also known as factory farms, typically house thousands of animals, generating millions if not billions of gallons of animal waste per year. For example, North Carolina alone generates almost 10 billion gallons of animal waste per year. 6 Livestock and poultry on the largest CAFOs generated 369 million tons of waste in 2012. 7 Animal waste is stored either in pits or in open ponds, called lagoons. Such waste-containment areas often leak and, during large storms, can rupture. 89 To dispose of the waste, CAFOs spray this manure onto farm fields. The environmental damage from spraying and from leaking, ruptured lagoons can be devastating. Surface and groundwater contamination (serious threats to aquatic ecosystems) and excessive nitrates in drinking water (serious threats to public health) stem from CAFO pollution. 1011 Animal waste can also include pharmaceutical residues, heavy metals (like copper and zinc) and harmful bacteria, which can leach into water supplies. 121314 Chicken manure is especially high in both phosphorus and nitrogen. Many chicken farmers spread huge quantities of chicken waste onto cropland to dispose of it; far more is spread than can be absorbed, and often more than is legally allowed. 15 When it rains, the excess nutrients and drug residues run off fields into streams and rivers, seeping into groundwater. Chicken waste is also high in ammonia: when dissolved in water, ammonia is not only highly toxic to fish, but can also be chemically converted into dangerous nitrates through bacterial action. 16 Industrial Crop Production Nutrients, such as nitrogen and phosphorous, are two of the main macronutrients in fertilizer that promote plant growth. Synthetic fertilizers containing both nitrogen and phosphorus are applied imprecisely to farm fields, often at rates far higher than what the plants need or what the soil can absorb. The excess nutrients from fertilizer leech into surface and groundwater, causing algal blooms and nitrate contamination, impacting drinking water, recreational activities (such as swimming and boating), fishing/shell fishing and marine and aquatic ecology. What Are the Negative Effects of Water Pollution from Agriculture? Algal Blooms, Dead Zones and Acidification High quantities of nutrients in water from industrial crop fertilizers and animal waste cause excessive aquatic plant growth — a process known as “eutrophication,” which, in turn, causes “hypoxia,” or water that is low in oxygen. 17 Harmful algal blooms (or HABs) occur when aquatic algae grow rapidly out of control. 18 Some types of HABs produce biotoxins, which can kill fish and other aquatic life and cause human illnesses, while others use up the oxygen in the water producing “dead zones,” where aquatic creatures cannot live. 19 Nitrogen fertilizer applied in the farm fields of the Midwest eventually makes its way to the Gulf of Mexico; this, along with runoff from animal waste, is one of the leading causes of the so-called Gulf “Dead Zone,” an oxygen-deprived area 8,000 square miles in size, in which no fish can survive. 2021 In places like the Eastern Shore of Maryland, home to thousands of chicken broiler houses, rivers have phosphorous concentrations that are among the highest in the nation, which is linked to the estimated 228,000 tons of excess chicken waste spread in the state. 22 The Chesapeake Bay, which receives runoff from the many chicken houses on the Delmarva Peninsula (parts of Delaware, Maryland and Virginia), experiences regular toxic algae blooms and dead zones. 23 Ammonia from agricultural runoff can also degrade ecosystems by acidifying waterways, which can affect the ecology of streams and rivers. 24 Heavy Metal Contamination In CAFOs, excessive amounts of heavy metals like copper and zinc are fed as supplements to pigs and chickens, to promote growth and prevent disease. 25 Other metals present in animal waste can include cadmium, lead, mercury and arsenic. 26 These metals accumulate in soil when animal waste is sprayed on farm fields and can contaminate water supplies. 272829 In humans, copper toxicity can cause gastrointestinal and liver disorders, as well as other health problems. 30 Copper can also damage the environment, negatively affecting soil microbial activity and plant growth, which can be toxic to fish and aquatic life in waterways. 31 Zinc pollution can also cause fish kills and damage to algae, crustaceans and salmon. 32 Nitrates and Other Contaminants in Drinking Water Elevated nitrate levels in drinking water can be dangerous to humans, causing low oxygen levels in infants (known as “blue-baby syndrome”) and low birth weight. 33 Elevated levels of nitrates in drinking water may also be an indicator of other agricultural-related contaminants in the water supply, such as pesticides. 34 While the EPA itself says that nitrate levels above three milligrams per liter of water indicate “contamination” and levels above one milligram per liter indicate contamination due to human activity, the EPA sets nitrate contamination standards at 10 milligrams per liter to prevent blue baby syndrome. 35 In a survey of state nitrate groundwater pollution (indicated as greater than five mg/L), 53 percent of Delaware’s groundwater was polluted with greater than five mg/L of nitrates, as well as 28 percent of Maryland’s and 10 percent of California’s. 36 Each of these states have a large number of factory farm concentrations. 37 Chemical pollution of drinking water from agriculture is also a problem. As many as one million Californians, for example, mostly living in the farming communities of the Central Valley, have dangerous levels of unregulated chemicals linked to cancer in their drinking water, according to California’s State Water Board. 38 Pathogen Contamination and Disease Outbreaks Animal waste contains a high level of pathogens (disease-causing microorganisms). Swine waste, for example, can contain more than 100 pathogens that cause human diseases. 39 When factory farm lagoons leak, contaminated water can end up in waterways and in groundwater. Pathogens can survive after being sprayed onto farm fields, leaching into groundwater, or being transported to surface water due to runoff. 4041 People can become sick simply by ingesting water during recreational activities (e.g., swimming or boating) or by consuming contaminated drinking water.

## Extra Cards:

### Misc Rebuttal:

#### The main study used to claim that organic agriculture is harmful for the environment is deeply flawed and wrong.

Smith 18

Andrew Smith (PhD and Chief Operating Officer at the Rodale Institute), Rodale Institute, “IS ORGANIC FARMING REALLY WORSE FOR THE CLIMATE? A RESPONSE”, December 19, 2018, https://rodaleinstitute.org/blog/is-organic-really-worse-for-the-climate-a-response/

Recent headlines have purported that organic farming is worse for the climate than conventional farming. This claim is based on a scientific study recently published in the journal Nature, titled “Assessing the Efficiency of Changes in Land Use for Mitigating Climate Change” (Timothy D. Searchinger, Stefan Wirsenius, Tim Beringer & Patrice Dumas). The study introduced a new method for calculating greenhouse gas emissions from agricultural production that includes the opportunity cost of land converted from natural habitat to farmland. We commend the study authors for working to bring a greater level of precision to measuring greenhouse gas emissions from anthropogenic activities. The science in the paper is sound, and the study was intended to present a new model using existing data and not intended to demonize organic agriculture. However, we can’t derive the conclusion that organic is worse for the environment from its findings. Key Issues The study compares organic and conventional production systems growing two crops (winter wheat and peas) in Sweden. The comparison is derived from yield and input data reported by the Swedish Board of Agriculture from 2013-2015. It is impossible and irresponsible to extrapolate a global phenomenon based on two crops grown in a single country over just three years. The study presents a graph that shows greater carbon sequestration benefits in conventional versus organic systems. However, the high degree of variation in the data used (as indicated by large error bars on the graph) suggests that differences between organic and conventional systems may not be statistically significant. More data should be included and analyzed before conclusions are drawn. The study duration is also too short to measure long-term effects. Importantly, the Searchinger et al piece ignores below-ground biological processes and interactions between plants and microbes that are the true building blocks of carbon sequestration. The study does not take into account the fact that organic systems promote soil biological diversity, which results in greater stores of carbon and nitrogen in the soil. Long-term, more carbon is stored in the soil in organic systems, and the need for external inputs is reduced. Short-term comparisons like that from the Searchinger et al study do not take into account the long-term benefit of organic farm production.

#### Organic agriculture can increase local food security.

FAO ‘08

Food and Agriculture Organization of the United Nations (FAO), “Organic Agriculture FAQ”, November 27, 2008, https://www.fao.org/organicag/oa-faq/oa-faq7/en/

Food security is not only a question of the ability to produce food, but also of the ability to access food. Global food production is more than enough to feed the global population, the problem is getting it to the people who need it. In market-marginalized areas, organic farmers can increase food production by managing local resources without having to rely on external inputs or food distribution systems over which they have little control and/or access. It is to be noted that although external agricultural inputs can be substituted by organic management of natural resources, land tenure remains a main constraint to the labour investments needed for organic agriculture. Organic farms grow a variety of crops and livestock in order to optimize competition for nutrients and space between species: this results in less chance of low production or yield failure in all of these simultaneously. This can have an important impact on local food security and resilience. In rain-fed systems, organic agriculture has demonstrated to outperform conventional agricultural systems under environmental stress conditions. Under the right circumstances, the market returns from organic agriculture can potentially contribute to local food security by increasing family incomes.

### Rebuttal: Labor

#### Organic farming practices are safer for workers due to lack of dangerous chemicals.

The Organic Center 18

The Organic Center (an independent non-profit 501(c)(3) research and education organization operating under the administrative auspices of the Organic Trade Associatio), “Farmworkers at risk from chemicals but organic can help, shows new report”, September 12, 2018, https://www.organic-center.org/farmworkers-risk-chemicals-organic-can-help-shows-new-report

The millions of farmworkers who labor on our farms across the country are vitally important to the success of agricultural operations. They help plant and harvest the crops, tend to the livestock, maintain the farm equipment, and manage the weeds and the pests. They are literally agriculture’s boots on the ground and hands in the dirt. But those men and women who are on the front line of our bountiful agricultural system and who are an invaluable part of the robust American farming sector are also at greatest risk for exposure to agricultural pesticides and the adverse health impacts that can occur as a result of that exposure, according to a timely and important report from The Organic Center. Clean and healthy food and a clean and healthy environment are critical concerns for all of us, and are the core principles at the heart of the organic movement. However, while organic agriculture bans the use of most pesticides and reduces exposure to these toxic chemicals, the sustained use of agricultural chemicals by conventional agriculture is having widespread and negative unintended consequences on our valuable farm workforce. With funding provided by the UNFI Foundation, The Organic Center report synthesizes 129 research studies from around the world that cover topics ranging from the impacts of toxic, synthetic pesticides on the health of farmworkers and farm communities, to the science supporting the efficacy of chemical-free pest control to demonstrate how organic certified production can substantially benefit those working in agricultural systems. “The health and safety of those who produce our food should be a concern for all of us, and consumers can take action to support healthy farming communities by choosing food grown organically,” said Dr. Jessica Shade, Director of Science Programs for The Organic Center. “We hope this report sheds light on this critical issue.” There is growing awareness of how the sustained use of agricultural chemicals affects our health and our environment. A recent court decision awarding a groundskeeper who was diagnosed with terminal cancer after regularly using Roundup (glyphosate) pesticide almost $300 million in damages from the pesticide’s maker captured headlines everywhere. Consumers often cite reduced pesticide exposure and environmental stewardship as the top reasons to choose organic. Beyond our kitchens and homes, organic systems greatly reduce risks for farmworkers and agricultural communities by not using toxic, synthetic pesticides. The Organic Center study looks at how adult farmers and farmworkers are exposed to pesticides, the negative health consequences of those exposures, organic production practices and processes used by organic agriculture to protect farmers and farmworkers, and an overview of pest management practices that can be implemented in any farming system to reduce the need for pesticides. 1.1 billion pounds and 1,400 pesticides Over 1.1 billion pounds of agricultural chemicals are used annually in the United States, and pesticide exposures on conventional farms cause thousands of illnesses every year. A large body of research documents the health risks associated with both short- and long-term exposure to pesticides: cancer, neurodegenerative disorders and poor reproductive health. Even with the best management practices while handling and applying pesticides, farmers and farmworkers are still at risk for exposure. The adoption of organic techniques that avoid the use of toxic, synthetic pesticides provides the surest safeguard against chemical-related occupational health problems. Almost 1,400 pesticides with over 900 active ingredients are registered with the Environmental Protection Agency (EPA) and approved for use in the United States. Organic farmers are required by law to follow strict standards set forth by the National Organic Production Act that include implementing cultural methods to control pests before any pest control substance may be applied. Some of the most common cultural practices utilized by organic farmers to manage pests include crop rotations, intercropping, the use of buffers and hedgerows, and the promotion of soil health to balance the farm ecosystem. In cases where these practices are ineffective in combatting a pest, organic farmers are allowed to use naturally occurring pest control products and restricted to about 25 synthetic materials approved by the National Organic Standards Board and deemed to pose little threat to humans and the environment. These substances undergo review every five years to assess any new knowledge of risk to humans and the environment, and to ensure protection of the population most vulnerable to the adverse health effects of pesticide exposure. By definition, pesticides are toxic to living organisms, so it is not surprising they can also be toxic to the environment and humans. While the adverse effects of pesticides on beneficial insect predators, song birds, pollinators and native plants are well documented, the unintended effects of pesticides on humans are perhaps the most concerning. Farmers and farmworkers, who are exposed to pesticides at higher doses and with greater frequency than the general public and often exposed to pesticides significantly more toxic because they are restricted from use by the general public, are at the greatest risk to the serious consequences of exposure. “Practices used by organic producers to support robust agroecosystems to naturally combat pests can reduce chemical inputs in any farm setting,” said Dr. Shade. “By shifting to more sustainable farming systems that rely on balanced ecosystems as a first line of defense against pests, we can ensure sustainable food security and healthy farm communities into the future.”

#### Job conditions are a main reason that certain industries and companies are facing a labor shortage.

Schweitzer and Khattar 21

Justin Schweitzer (Masters in applied economics, policy analyst for American Progress) and Rose Khattar (Associate Director of rapid response and analysis on the Economic Policy team at American Progress), Center for American Progress, “It’s a Good Jobs Shortage: The Real Reason So Many Workers Are Quitting”, December 7, 2021, https://www.americanprogress.org/article/its-a-good-jobs-shortage-the-real-reason-so-many-workers-are-quitting/

The solution is simple: Create better jobs. For employers complaining of a “labor shortage,” there is a simple solution: make workers a better offer. Many employers are already increasing pay, providing stronger benefits, and improving work conditions to be more competitive in the labor market. Wage growth has accelerated over the summer, with pay growing fastest for workers in the lowest income percentiles and the lowest-wage industries, which are also the industries with the highest quit rates. (see Figure 4) Nevertheless, there is still a long way to go after decades of stagnation. Wage growth for “job switchers”—or employer-to-employer transitions—is higher than it is for “job stayers” and has been rising quickly back to pre-pandemic levels in the last few months, while wage growth for job stayers has remained stagnant. Additionally, wage growth is much higher and has accelerated significantly faster this year for the youngest workers, who are newer to the labor market, are generally more willing to switch jobs, and are more likely to work low-paying, entry-level jobs—particularly in those low-wage industries experiencing the most wage growth. However, wage growth slowed down recently in many industries as hiring faltered during the emergence of the delta variant. Still, workers are making it clear—including through striking—that while they expect to earn a living wage, wages are not the only factor in job quality, with the pandemic likely propelling people to reevaluate what they value and want in a job. Workers also place a high value on—and now have the leverage to demand—benefits such as paid family and medical leave and health insurance; a workplace safe from harassment, illness, and physical injuries; flexible scheduling; a better work-life balance; and a career path with clear upward mobility. Yet creating better jobs is not just good for employees; it’s also good for employers. Better-quality jobs are associated with lower turnover, higher productivity, and less time and money spent on hiring and training new workers. In turn, this also benefits the economy in the long run by allowing those more productive businesses to expand and by creating more stable, well-paying employment that allows low-wage workers to spend more and thus help grow their local economies.

#### Conventional farms have a dangerous work environment.

NCFH 17

National Center for Farmworker Health (NCFH), “Agricultural Worker Occupational Health & Safety”, November 2017, http://www.ncfh.org/uploads/3/8/6/8/38685499/fs-occ\_health.pdf

According to a 2015 report of the Bureau of Labor Statistics of the U.S. Department of Labor, agriculture remains one of the most dangerous industries in the United States with the highest incidence of fatal workplace injuries. Farmworkers face workplace hazards similar to those found in other industrial settings, such as working with heavy machinery and hard physical labor. They also face unique occupational hazards specific to farm work, including pesticide exposure, skin disorders, infectious diseases, respiratory problems, hearing and vision disorders, and musculoskeletal injures. The following is a compilation of recent facts and figures pertaining to the occupational health and safety of farmworkers. General Information In 2015, there were 570 fatal occupational injuries within the agricultural industry, and, agriculture had the highest rate of fatal occupational injuries: 22.8 fatal injuries for every 100,000 full-time workers. The agricultural industry also has a high number of cases involving nonfatal occupational injury and illness that required either time off from work or job transfer and restriction. Over 18,000 injuries and illnesses resulting in time away from work occurred in 2015 in the agriculture, forestry, and fishing industry, resulting in an incidence rate of 189 injuries and illnesses per 10,000 full-time workers compared to 104 per 10,000 in all industries. Children in agriculture are also at great risk: the U.S. Department of Agriculture released a report in 2009 that recorded 15,876 injuries to youths under 20 years of age who lived, worked or visited a farm. The following data for 2009 was also noted: Fifty-eight percent of youth injuries were incurred by males Youth ages 10 to 15 incurred the highest number of injuries at 6,912 Youths under age 10 incurred 4,111injuries Youths ages 16 to 19 incurred 4,148 injuries. Every day, about 100 agricultural workers suffer lost-work-time injuries, and an estimated half of injuries among crop production workers are classified as strains or sprains.3 According to the National Agricultural Workers Survey 2013-2014, 4% of agricultural worker respondents reported experiencing a workplace injury in the past 12 months, and 17% reported experiencing musculoskeletal pain or discomfort. Occupational Health & Safety Factsheet Pesticide Exposure Today, agricultural workers are exposed to “non-persistent” pesticides which are metabolized by the body within days. They may enter the body through ingestion and inhalation, but they are primarily absorbed through the skin. During their daily work, agricultural workers are often exposed to pesticides, which include substances that prevent, destroy or repel pests. The term pesticide also encompasses herbicides, fungicides, and various other substances used to control pests. Some pesticides can cause harm to human health. Agricultural workers frequently encounter pesticides through direct contact with the chemicals, contact with pesticide residue on treated crops or equipment, and drift of pesticides into untreated areas. Several studies also prove that entire families are at risk to pesticide exposure because of drift from nearby areas, not providing enough hand-washing or bathroom facilities, and bringing home work clothes that have been contaminated. The Pesticide Safety Education Program of Cornell University states that mild symptoms of poisoning include headache, fatigue, dizziness, nervousness, perspiration, loss of appetite, thirst, eye irritation and irritation of the nose and throat. Severe poisoning symptoms include fever, intense thirst, vomiting, muscle twitches, convulsions, inability to breathe and unconsciousness. Exposure to large doses of a pesticide can lead to severe effects such as loss of consciousness, coma and even death. Lifetime exposure to pesticides is significantly greater for Latino immigrant agricultural workers as compared to other Latino immigrant workers. Among agricultural workers, higher education levels and possessing an H-2A visa were associated with lower lifetime exposure levels to pesticides. Pesticide safety regulations that exist include: the Worker Protection Standard, which states that field workers must be trained on pesticide use, and the Occupation Safety and Health Act, which requires employers with 11 or more employees to provide drinking, toilet and washing facilities for agricultural workers while they work in the fields. A study conducted in eastern North Carolina surveyed 300 agricultural workers regarding pesticide safety and training. They reported the following: 75.3% had water available for hand-washing, but only 44.3% were provided soap, 51.3% were told when it was safe to enter fields after applying, 51% were told when pesticides were applied, 34.8% reported being provided pesticide safety instruction by a supervisor, 28% percent worked in areas adjacent to fields where pesticides were being applied, 25.2% were asked to enter fields before it was safe to do so, 16% worked in fields while pesticides were being applied, and 14.8% were provided with pesticide safety equipment. Another pesticide danger for agricultural workers is the limited information they are provided about the pesticides they are being exposed to. They may not be told what types of pesticides are being used at any given time, they may have little control over exposure, and they often live in grower-provided housing and do not know the severity of exposure in these dwellings. One other challenge is that growers rarely speak the same languages as workers. Growers often do not recognize or understand how linguistic, cultural and power differences create barriers for farmworker pesticide safety.

#### Organic farming can attract younger workers.

Greenaway 18

Twilight Greenaway (journalist), Yes! Magazine, “Can Organics Help Rural America Rebound?”, May 4, 2018, https://www.yesmagazine.org/environment/2018/05/04/republicans-and-democrats-agree-the-us-needs-more-organic-farmers

In an industry now worth $47 billion, organic certification can earn farmers like Johnson a premium, and the growth in demand has been consistent, year over year. From the outside, these facts might make the transition to organic a no-brainer. But in many rural areas with no immediate access to large bases of organic customers, it’s just not worth it. And although Johnson believes deeply that farming in harmony with the natural world—and without synthetic pesticides—is the right thing to do, she is less sure that the economic boost organic offers can make a real difference to turn around some of the most challenging trends in Iowa. The rural part of the state, like elsewhere in the Corn Belt, is home to very few young families, and has seen schools and hospitals close, lawyers leave, and many job prospects dwindle. Meanwhile, Congressman Peter Welch, a Democrat from Vermont, has been mulling the same set of questions in his state—where rural residents find themselves in a very different universe from their rural and suburban counterparts. Those who live in around Burlington, for instance, have seen the economy bounce back since the Great Recession, while Vermonters in the rural part of the state have had the opposite experience. Some rural counties in the state have actually lost jobs since 2009 and several are still without Wi-Fi and cell phone coverage, two important economic drivers. “It has to be an all-hands-on-deck effort to find practical economic opportunities for rural America,” says Welch, who believes that providing more support for organic agriculture is one way to do that. Late last year, Welch joined forces with Representative Sean Duffy, a Republican from Wisconsin, to announce the Organic Farmers Access Act, a piece of legislation that would expand eligibility for organic producers in a handful of federal rural development programs. While the act doesn’t come with new money, it essentially gives organic producers and processors priority when it comes to accessing existing rural development grants and loans designed to help them scale up their operations. “If you grow organic as a model of excellence in agriculture and commerce, you have the benefit of protecting the environment and enhancing community well-being and rural livelihood,” says Laura Batcha, executive director of the Organic Trade Association, which worked with Welch and Duffy to draft the bill. Like beginning farmers, veterans, and other groups receiving priority when it comes to receiving support, organic producers as an inherently good choice, Batcha says. This new policy effort is one of several that OTA and other advocates have put forward as a way to ensure that organic will take more prominence in the next farm bill. For Welch, it has obvious benefits. Vermont has over 700 organic businesses, and Welch says he has seen organic premiums allow many small- and medium-scale farmers to stay in business without having to expand to compete with corporate operations. “Many of the folks who went organic found that they could make a go of it with a much smaller farm,” he said on the phone recently. The perception that higher premiums can save the farm appears to be cultivating a rare alliance between leaders in red and blue districts in an effort to retain and attract young farmers—the key to rural reinvigoration. “You’ve got conservative Republicans and liberal Democrats working together on this,” said Welch. “Regardless of which party they voted for, people like their local agricultural operations. [Many of] those local farms are organic and they tend to be young people, and this is just one way to keep them on the land.” The National Organic Program and the Rural Development department have traditionally had less overlap within the U.S. Department of Agriculture than one might expect, considering most organic food is grown in rural areas. And the grants and loans Welch and Duffy are targeting with their bill could be a crucial point of overlap.

### Misc:

#### The US regulation of pesticides is not enough to protect people from non-organic farming as it lags behind other nations.

Donley 19

Nathan Donley (Senior scientist specializing in pesticide policy at the Center for Biological Diversity), Environmental Health, “The USA lags behind other agricultural nations in banning harmful pesticides”, June 7, 2019, https://ehjournal.biomedcentral.com/articles/10.1186/s12940-019-0488-0

The United States of America (USA), European Union (EU), Brazil and China are four of the largest agricultural producers and users of agricultural pesticides in the world. Comparing the inclination and ability of different regulatory agencies to ban or eliminate pesticides that have the most potential for harm to humans and the environment can provide a glimpse into the effectiveness of each nation’s pesticide regulatory laws and oversight. Methods The approval status of more than 500 agricultural pesticides was identified in the USA, EU, Brazil and China and compared between nations. The amount of pesticides that were used in the USA and banned in these other nations was compiled and linear regression was used to identify trends in use. Results There are 72, 17, and 11 pesticides approved for outdoor agricultural applications in the USA that are banned or in the process of complete phase out in the EU, Brazil, and China, respectively. Of the pesticides used in USA agriculture in 2016, 322 million pounds were of pesticides banned in the EU, 26 million pounds were of pesticides banned in Brazil and 40 million pounds were of pesticides banned in China. Pesticides banned in the EU account for more than a quarter of all agricultural pesticide use in the USA. The majority of pesticides banned in at least two of these three nations have not appreciably decreased in the USA over the last 25 years and almost all have stayed constant or increased over the last 10 years. Conclusions Many pesticides still widely used in the USA, at the level of tens to hundreds of millions of pounds annually, have been banned or are being phased out in the EU, China and Brazil. Of the pesticides banned in at least two of these nations, many have been implicated in acute pesticide poisonings in the USA and some are further restricted by individual states. The United States Environmental Protection Agency (US EPA) has all but abandoned its use of non-voluntary cancellations in recent years, making pesticide cancellation in the USA largely an exercise that requires consent by the regulated industry.

#### The pandemic has put pressure on suppliers of protective equipment, harming non-organic farm laborers.

Bateman 20

Melanie Bateman (Lecturer in Integrated Crop Management, University of Neuchâtel), The Conversation, “A global mask shortage may leave farmers and farm workers exposed to toxic pesticides”, April 27, 2020, https://theconversation.com/a-global-mask-shortage-may-leave-farmers-and-farm-workers-exposed-to-toxic-pesticides-134976

As the COVID-19 pandemic spreads around the world, vital N95 masks and other personal protective equipment have been hard to come by, even for those who need them most. The World Health Organization estimates that the crisis has driven demand for this equipment, known as PPE, 100 times higher than normal. Even with dramatic increases in production, manufacturers have said they’ll likely be unable to meet demand for the foreseeable future. And the WHO has warned that the severe shortage is putting the lives of health care workers at risk. But it’s not just health care workers and other care providers who need PPE – especially those N95 masks, technically known as respirators. These devices are also vital to the safety of workers in a host of other industries, from building trades to agriculture. As an entomologist who studies and teaches about pesticide risk reduction, I am particularly concerned about what the shortage may mean for farmworkers, whom the Department of Homeland Security classifies as essential workers – people who remain on the job even where others have been told to stay home. Hundreds of thousands of farmworkers in the United States routinely encounter pesticides on the job And some of the most widely used pesticides in the U.S. pose serious health risks, ranging from causing occupational asthma and respiratory irritation to death. Epidemiological studies, including a long-term study of over 80,000 licensed pesticides applicators conducted by the National Institutes of Health, have found links between pesticides and respiratory problems, ranging from acute symptoms such as dry throat, difficulty breathing, chest pain, coughing and wheezing to chronic conditions like decreased lung function, occupational asthma, chronic obstructive pulmonary disease and lung cancer. Another study by the National Institute for Occupational Safety and Health found that farmworkers had significantly elevated mortality for a number of respiratory conditions, including hypersensitivity pneumonitis (also known as “farmer’s lung”), asthma, bronchitis and pneumonia. Masks can be vital to minimizing the risk. The current shortage of masks comes on top of other risks related to the current health emergency. For example, farm workers often have preexisting conditions, such as those affecting respiratory health, that are risk factors for coronavirus. Many live and work in crowded conditions, and have difficulty accessing medical care. Many farmers and farm workers, especially those who work with pesticides, carry N95 masks. These devices are made of non-woven polypropylene fiber and meet strict government standards for filtering out particles and droplets as small as 0.3 microns, or three one-thousandths of a millimeter. These are often part of a broader PPE kit that can include respiratory protection, gloves, headgear and body, foot and eye protection. Under U.S. law, employers must provide appropriate PPE to workers who handle pesticides. The kind of protective equipment needed is determined by a pesticide product’s level of toxicity for five types of acute exposure – oral, dermal, inhalation, eye irritation and skin irritation – as well as whether it is a gas, solid or liquid, and whether the work is being done outdoors or in an enclosed space. Anyone who handles or assists with the application of pesticides is required to use filtering masks as good as N95s or better when they work with products which are lethal or toxic if inhaled, or if risk assessments identify other issues that need to be addressed.

#### Non-organic farming accelerates the severe weather events associated with climate change.

Weber 19

Victor Weber (Founder & Director of the Future Real Estate Institute), World Economic Forum, “Modern farming is harming the planet. Tech-driven permaculture could heal it”, February 28, 2019, https://www.weforum.org/agenda/2019/02/Modern-farming-agriculture-harming-planet-tech-driven-permaculture-heal/

Healthy soil leads to healthy humans. Sir Albert Howard, one of the forethinkers of organic agriculture and composting, explored this link in the early 20th century. Sir Albert recognized soil as a living organism, not just as an exploitable commodity, as we do nowadays. Current agriculture, which consists of monocultures and extensive use of fertilizer, pesticide and herbicide, has caused a significant loss of biodiversity, has decreased soil quality and has polluted the environment. Due to rising awareness of these issues, researchers are now exploring alternatives, such as vertical indoor farms, hydroponics and cultured meat. However, there is a clear divide in approaches towards future agriculture. Technologists rely on a predominately tech-centric approach, while organic farmers rely on natural methods such as polycultures, mixed farming with livestock and crops, and composting. Even though the two camps do not have much in common, the pareto-optimal solution for humanity and the environment may lie in the middle - tech-enhanced permaculture. Why agriculture has to change Over the last three decades, 75% of insect species have become extinct, due to extensive use of pesticide and herbicide in modern monocultures. Our soil is losing its fertile humus layer, which is resulting in even more fertilizer use. These negative trends are accelerating climate change, leading to more wildfires, droughts and floods. Modern agriculture and our industrialized way of life, focused on scalable and highly specialized production methods, are core drivers of these changes. Our foods are becoming less nutrient-rich and are contaminated by pesticides, herbicides and fungicides. Global conventional agriculture also has negative social consequences, including land-grabbing, unfair working conditions and excessive waste. It is becoming obvious that our current approach is highly destructive. We need to find more sustainable ways to nourish a growing global population. Since permaculture has a positive impact on the environment, it is worth considering.

#### Organic farming has been rising in the US.

Bialik and Walker 19

Kristen Bialik (research assistant at Pew Research Center) and Kristi Walker (Interactive Designer at Pew Research Center), Pew Research Center, “Organic farming is on the rise in the U.S.”, January 10, 2019, https://www.pewresearch.org/fact-tank/2019/01/10/organic-farming-is-on-the-rise-in-the-u-s/

There were more than 14,000 certified organic farms in the United States in 2016, according to the latest available data from the U.S. Department of Agriculture’s National Agricultural Statistics Service. This represents a 56% increase from 2011, the earliest comparable year. And while California remains king when it comes to the number of organic farms, several other states saw dramatic growth in organic farming over this time, particularly in the South. As the number of organic farms has increased, so too have sales of certified organic products: U.S. farms and ranches sold nearly $7.6 billion in certified organic goods in 2016, more than double the $3.5 billion in sales in 2011. Still, organic farming makes up a small share of U.S. farmland overall. There were 5 million certified organic acres of farmland in 2016, representing less than 1% of the 911 million acres of total farmland nationwide. Some states, however, had relatively large shares of organic farmland. Vermont’s 134,000 certified organic acres accounted for 11% of its total 1.25 million farm acres. California, Maine and New York followed in largest shares of organic acreage – in each, certified organic acres made up 4% of total farmland.

# Con

#### We stand in negation of the following:

In the United States, the benefits of increasing organic agriculture outweigh the harms.

### Definitions

#### Organic agriculture

UC Davis Health 19

UC Davis Health, “Are organic foods really healthier? Two pediatricians break it down”, April 5, 2019, https://health.ucdavis.edu/blog/good-food/are-organic-foods-really-healthier-two-pediatricians-break-it-down/2019/04

The U.S. Department of Agriculture defines organic as crops that are produced on farms that have not used most synthetic pesticides herbicides or fertilizer for three years before harvesting the food. There needs to be a significant buffer zone to decrease contamination from adjacent farm lands. Farms also have to be free from any genetic engineering, ionizing radiation or sewage sludge (yuck). And as it relates to livestock, animals must be fed organic feed, live on organic land and be raised without routine antibiotics or hormones. Free range doesn’t mean organic; it just means animals weren’t kept in such small enclosures. Also, the “natural” label on food means there’s no artificial flavoring or color ingredients, but that doesn’t mean it’s organic or free of pesticides.

### Framework

#### Cost benefit analysis

The framing for today’s round ought to be cost benefit analysis. If we demonstrate that increasing organic agriculture in the United States produces more harm than good, we should win the round

### Contention 1: Environment

#### Organic farming is worse for climate change than non-organic farming.

Temple 19

James Temple (Senior editor for the MIT Technology Review focused on energy), MIT Technology Review, “Sorry—organic farming is actually worse for climate change”, October 22, 2019, https://www.technologyreview.com/2019/10/22/132497/sorryorganic-farming-is-actually-worse-for-climate-change/

Organic practices can reduce climate pollution produced directly from farming – which would be fantastic if they didn’t also require more land to produce the same amount of food. Clearing additional grasslands or forests to grow enough food to make up for that difference would release far more greenhouse gas than the practices initially reduce, a new study in Nature Communications finds. Other recent research has also concluded that organic farming produces more climate pollution than conventional practices when the additional land required is taken into account. In the new paper, researchers at the UK’s Cranfield University took a broad look at the question by analyzing what would happen if all of England and Wales shifted entirely to these practices. The good news is it would cut the direct greenhouse-gas emissions from livestock by 5% and from growing crops by 20% per unit of production. The bad news: it would slash yields by around 40%, forcing hungry Britons to import more food from overseas. If half the land used to meet that spike in demand was converted from grasslands, which store carbon in plant tissues, roots, and soil, it would boost overall greenhouse-gas emissions by 21%.

#### Organic farming increases greenhouse gas emissions through greater land use.

Varanasi 19

Anuradha Varanasi (Author of State of the Planet for Columbia Climate School), Columbia Climate School, “Is Organic Food Really Better for the Environment?”, October 22, 20219, <https://news.climate.columbia.edu/2019/10/22/organic-food-better-environment/>

Not surprisingly, the debate over organic versus conventional farming is heavily polarized in academic circles. Of late, the conversation about organic farming has shifted from its lack of chemicals to its impact on greenhouse gas emissions. In December 2018, researchers from Chalmers University of Technology published a study in the journal Nature that found that organic peas farmed in Sweden have a bigger climate impact (50 percent higher emissions) as compared to peas that were grown conventionally in the country. “Organic farming has many advantages but it doesn’t solve all the environmental problems associated with producing food. There is a huge downside because of the extra land that is being used to grow organic crops,” said Stefan Wirsenius, an associate professor at Chalmers. “If we use more land for food, we have less land for carbon sequestration. The total greenhouse gas impact from organic farming is higher than conventional farming.” Soon after the paper was published and widely covered by various news organizations globally, several researchers criticized the study. Andrew Smith, a chief scientist at the Rodale Institute, lashed out in a post saying that it was “irresponsible to extrapolate a global phenomenon based on two crops grown in one country over three years.” Smith also added that more data should be included and analyzed before making conclusions. Commenting on this, Wirsenius said, “It is true that we had a small comparison between organic versus conventional farming based on Swedish statistics. This is because Sweden is one of the very few countries that has statistics that include the yields from organic and conventional crops.” “It would have been better with bigger sample size and that is a valid concern,” he added. It is estimated that by 2050, the demand for food is going to increase by 59 to 98 percent due to the ever-increasing global population. A major challenge for the agriculture business is not only trying to figure out how to feed a growing population, but also doing so while adapting to climate change and coming up with adequate mitigation measures. Some scientists continue to be concerned that with limited land areas that will be available for farming, it might not be sustainable for industrialized countries to go 100 percent organic. A recent study published in the journal Nature Communications concludes that the widespread adoption of organic farming practices in England and Wales would lead to increases in greenhouse gas emissions. This is mainly because agricultural yields would be 40 percent lower. The researchers argued that with fewer crops being grown locally, these two countries would have to import more food supplies. However, if England and Wales did not solely rely on organic farming, and both countries’ farmers used this alternative form of farming on a smaller scale, it could result in a 20 percent reduction in carbon emissions. “For organic farming to be successful, agribusinesses would have to find the balance between the costs involved and also, its carbon footprint, while taking into consideration the overall need to meet the high demands for food,” said Alexander Ruane, a research physical scientist at NASA Goddard Institute for Space Studies and an adjunct associate research scientist at the Columbia University Center for Climate Systems Research. “That’s tough because the goal of organic farming in developed countries currently is about meeting the needs of those who can afford the luxury to buy the highest quality food. If the needs of this luxury interfere with the need to feed the entire population, then you have the potential for conflicts.”

### Contention 2: Food Insecurity

#### Increasing organic agriculture will increase the prices of food.

Meemken and Qaim 18

Eva-Marie Meemken (Professor from the Department of Agricutltural Economics and Rural Development at the University of Goettingen) and Matin Qaim (Professor at the Center of Biodiversity and Sustainable Land Use at the University of Goettingen), Annual Review of Resource Economics, “Organic Agriculture, Food Security, and the Environment”, October 2018, https://www.annualreviews.org/doi/10.1146/annurev-resource-100517-023252

Organic agriculture is often perceived as more sustainable than conventional farming. We review the literature on this topic from a global perspective. In terms of environmental and climate change effects, organic farming is less polluting than conventional farming when measured per unit of land but not when measured per unit of output. Organic farming, which currently accounts for only 1% of global agricultural land, is lower yielding on average. Due to higher knowledge requirements, observed yield gaps might further increase if a larger number of farmers would switch to organic practices. Widespread upscaling of organic agriculture would cause additional loss of natural habitats and also entail output price increases, making food less affordable for poor consumers in developing countries. Organic farming is not the paradigm for sustainable agriculture and food security, but smart combinations of organic and conventional methods could contribute toward sustainable productivity increases in global agriculture.

#### Rising food prices will lead to higher levels of food insecurity, harming many.

Wamsley 21

Laurel Wamsley (reporter for NPR), NPR, “Rising food prices have resulted in both food insecurity and improvisation”, November 9, 2021, https://www.npr.org/2021/11/09/1054032209/rising-food-prices-have-resulted-in-both-food-insecurity-and-improvisation

The cost of many foods — especially beef, pork and poultry — is rising fast, largely due to supply chain issues. For many, that can mean hard decisions at the grocery store. MARY LOUISE KELLY, HOST: And now to something that affects just about all of us - rising food prices. A lot of us are experiencing sticker shock at the grocery store, and many families are finding their grocery budget does - is not covering what it used to. NPR's Laurel Wamsley reports. LAUREL WAMSLEY, BYLINE: When I talk with Washington, D.C., resident Kleshay Miller (ph) outside a supermarket in Columbia Heights, she's carrying plastic grocery bags, but those bags don't contain the item she actually wanted to buy. KLESHAY MILLER: We have a whole bag of soup. You get four for five. I went in there for some steak 'cause I like to make homemade soup, but it's too high. WAMSLEY: The cost of steak? MILLER: Yes. WAMSLEY: She also wanted to buy paper towels and toilet paper. MILLER: But you see I didn't come out with any, so - (laughter). WAMSLEY: With her 18-year-old son standing beside her, Miller says the rising prices have been hard on their budget. Does it cause you any stress? MILLER: Of course because we have special diets on top of that and underlying health issues. We have to eat certain ways, so that food really costs. WAMSLEY: She's not the only one feeling the pinch. The price of food at home has gone up 4.5% over the last year. And one food item has gotten especially pricey - meat. JAYSON LUSK: Beef is up about 18%. Pork is up about 13%. Chicken is up about 8%. WAMSLEY: Jayson Lusk is an agricultural economist at Purdue University. He says the cost of corn and soybeans went up a year ago, driven by demand from China and some bad weather. Because corn and soybeans are what livestock eats, meat prices went up. And there's high demand in general right now for groceries and eating out. LUSK: And then on the supply side, pandemic-related disruptions are still here, mainly labor-related issues. In a lot of parts of food processing, it's still tough to get labor, and labor is more expensive. WAMSLEY: The different trends you've heard about - ports clogged with ships, people quitting their jobs - they're all a part of why food costs more. Brandon Tabor (ph), a 33-year-old in Houma, La., says prices surged during Hurricane Ida and never receded. He's noticed the spike in meat prices and finds that canned goods are pricier, too. BRANDON TABOR: Like, the off-brand costs as much as the name-brand corn would cost three months ago. And you just got to get what you got to get, sometimes. WAMSLEY: Nerve injuries in his hands have made it hard to find steady work. He says the SNAP benefits he receives are helpful, but they don't cover everything. TABOR: Probably three weeks out of the month, I'll have groceries and then start getting to where things run thin, you know? WAMSLEY: Geri Henchy is director of nutrition policy for the Food Research & Action Center in Washington, D.C. She says the rising food prices are a disaster for low-income families. GERI HENCHY: Many of them are already struggling. And as prices have increased and so rapidly, they cannot adjust. They don't have room in their budgets. WAMSLEY: More than 38 million Americans lived in food-insecure households last year, according to the USDA. And Henchy says rising food costs can be tough for those who had been on the brink but still able to get the food they need. HENCHY: There's a whole set of low-income people who are in that category. When these food prices go up like this, they just fall out of that category. They become food-insecure. WAMSLEY: Krisna Mendieta, a 39-year-old in Queens, N.Y., is managing to hold it together. She's 39 and grew up in Ecuador, and her household includes her mother, her fiance and her 18-year-old daughter. KRISNA MENDIETA: Before, I was able to have a diet rich in all kinds of meat, fish, different type of vegetable. WAMSLEY: She works as a dental assistant, and her hours have been cut during the pandemic. With higher prices and less income, her family has changed its diet to rely more on seasonal vegetables. MENDIETA: Now meat is out of the way (laughter), seafood out of my reach, though now I have to try to look for the sales for the chicken 'cause, sometimes, you do find it. WAMSLEY: She said she tried to get SNAP benefits but was told she makes about a hundred dollars over the income limit. MENDIETA: It's not that I feel hungry. It's just stressing to see that now I have limitation that I didn't have before, even though I'm working. WAMSLEY: Mendieta says she's improvising, finding new ways to work magic with vegetables. As prices keep rising, many other families will have to find ways to improvise, too. Laurel Wamsley, NPR News, Washington.

### Contention 3: Labor

#### Decades-long labor shortages are affecting farms.

Lagarde 21

Gabe Lagarde (reporter), The Country Today, “Agriculture wrestles with labor shortage”, October 25, 2021, https://www.leadertelegram.com/country-today/agriculture-wrestles-with-labor-shortage/article\_3114a764-b48a-5670-b487-ceaafa0c6a89.html

The American economy is experiencing a labor shortage in virtually every sector across the nation. Agriculturists, farmers and advocates are searching for answers — from Capitol Hill, to the rural heartland and across international borders. Labor shortages are hardly a new phenomenon in the dairy industry, said John Holevoet, director of governmental affairs at Edge Dairy Farmers Cooperative. Struggles to find workers in 2021 only represents the latest iteration of what has been a concern in agriculture for decades. “It’s been almost a generation. That’s not an exaggeration. In some ways, we’ve been a bit of a canary in the coal mine,” Holevoet said. “We saw labor shortages expand farm labor to other areas of agribusiness and food processing to other areas of rural manufacturing. People are having a hard time finding people. We’ve been dealing with this for a long, long time.” According to polls conducted by the cooperative at this year’s World Dairy Expo in Madison, 75% of respondents said the economy was the most pressing issue going into the 2022 mid-terms, while flagging supply chains and labor shortages were identified as significant factors. Of course, whether dwindling employment pools indicate a labor shortage or a shortage of attractive, good-paying jobs is a matter of debate. If it’s the latter, it doesn’t apply to dairy and agriculture at large, said Holeveot. He noted that farmers routinely pay starting hourly wages in the high teens or low twenties, with competitive benefits. That’s a far cry from minimum wage jobs in retail, fast food and other sectors of customer service which have experienced losses in recent months. So what’s driving these labor shortages and why is agriculture particularly vulnerable?’ In Holevoet’s eyes, much of it can be attributed to trends in the making for decades — long before 2020 or COVID-19. The pandemic only accelerated what was already a looming problem for agriculturists across the United States. Farming no longer occupies the central place in American culture it once did. Now, it’s further removed form the everyday lives and interest of most, particularly among younger people who would otherwise occupy these unfilled jobs. This problem extends past agriculture, Holevoet said. There’s a shortage of available workers in rural areas, period. Population growth has been concentrated in urban centers, Holevoet said, while younger rural residents have been making an exodus to cities. Neither of these trends bode well for rural economies and agriculture.

#### Organic farms require even more laborers than non-organic farms, exacerbating the labor shortage issue.

Orsini, Padel, and Lampkin 18

Stefano Orsini (PhD and researcher for the Organic Research Centre), Susanne Padel (PhD and Professor at Thunen-Institut), and Nic Lampkin (PhD and researching on organic farming policy), Organic Farming, “Labour Use on Organic Farms: a Review of Research since 2000”, May 18, 2018, https://literatur.thuenen.de/digbib\_extern/dn061533.pdf

Labour use on organic farms is expected to differ from that on conventional farms [1–3]. In particular, organic farming is frequently associated with claims of high labour requirements, because it needs more resources than conventional for manual and mechanical weed control, is based on a greater diversity of crops at farm level, and organic farmers more often develop marketing and processing activities on farm [2,4,5]. However, it is not always the case that more labour is required for individual organic enterprises than conventional [5,6]. A variety of study fields—mainly agricultural economics, rural sociology, entrepreneurship research and geography—have dedicated research to socio-economic aspects of organic farming, but labour has seldom been the primary focus and different perspectives have been adopted, including technical efficiency, rural development and social justice. The knowledge about labour use on organic farming in terms of workload, labour nature and quality, is fragmented, and there are variable results. There is currently no overview of the outcomes in recent literature. This paper seeks to address this gap. Gaining an overview of what is known so far seems to be timely, as there is a need for more farmers to convert to organic agriculture in the EU, in order to meet the demand of a growing organic market and to reach the targets for organic production set by many EU governments [7]. It is crucial to understand whether, to what extent and under what circumstances labour requirements on organic farms may be different from conventional farms and may hinder the adoption of the organic methods. Gaining insights into the factors affecting labour use on organic farming is relevant to farmers and policy makers alike. Examining the relation between labour use and technical efficiency and productivity is also critical to identify key research and policy areas for the future development of the organic sector. The main objective of this paper is to provide an overview of the findings of existing literature, considering the different perspectives that have been used to address this topic. The review considers literature published since 2000 that focused on aspects of labour in organic agriculture in Europe. We have also included a few other studies which are particularly relevant from a methodological point of view. In the first part of this paper we present the literature that addresses labour use on organic farming, summarising relevant results in one table. We propose a framework outlining the main factors affecting labour use. The second part of the paper focuses on type and quality of employment provided. Finally, some conclusions are presented. Overall we found only six studies [8–13] comparing labour use per hectare or head of livestock on organic and conventional farms that include a breakdown by farm type. These studies suggest that labour use depends on farm structure, in particular farm type and size. Studies that present results on labour use per hectare or per head of livestock for different farm types are mainly based on FADN data, with Offermann and Nieberg [12] presenting data published before 2000. Lobley et al [10], Tzouvelekas et al [8] and Guesmi et al [9] used primary data gathered through farm surveys. In Table 1 below we summarise results by farm type. The literature indicates higher labour requirements than conventional for organic arable cropping, general cropping and vineyards [10–13], but exceptions were found in some countries. A similar or lower use of labour per hectare on organic farms is reported for livestock farms, such as dairy farms in England and Wales [11], Austria and France [13], for lowland cattle, Less Favoured Areas(LFA) and sheep in England and Wales [10,11] and also for olive groves in Greece [8]. Mixed results were found for horticulture, general cropping and mixed farming. Only some of the studies reviewed provide an explanation of the differences in labour use on organic and conventional farming. For example, lower labour use on organic olive grove farms in Greece compared with conventional was explained with less labour required to harvest the lower levels of olive production [8]. Labour use per animal in livestock systems is similar or higher on organic farms, but lower stocking rates and lower number of animals on organic farms can result in less total labour use per hectare [12]. A distinct group of studies report data of labour use per farm, rather than per hectare or head of animals and the results within this group are mixed too. Three studies report lower labour use on organic dairy farms compared to conventional [14–17], and three suggest the opposite [1,18,19]. Likewise on organic arable cropping both cases of higher [18,20,21] and lower [20,22,23] labour use than conventional farms are reported. However, higher labour input per farm does not necessarily imply higher labour input per hectare, especially if organic and conventional samples are unbalanced in terms of average farm size. For example, the research conducted in the UK and the Republic of Ireland by Morison et al [24] indicates that small organic farms use proportionally more labour per 100 ha than large organic farms. It was found that the organic sector employs 35% more labour per farm, but conventional farms employ 80% more labour per hectare, as organic farms within the sample were considerably larger than conventional [24]. The presence of on-farm diversification activities can also impact on labour use. Organic farms are more likely to engage in diverse crop production and activities, such as processing and direct marketing, which impact on labour organisation and increase workloads on farms

## Extra Cards:

### Extension: Environmental Degradation Examples

#### A prominent organic company, Gunsmoke Farms, has come under criticism for the environmental harm it is causing, exemplifying the harmful environmental impacts of organic agriculture.

Charles 21

Dan Charles (Reporter for NPR), NPR, “A Giant Organic Farm Faces Criticism That It's Harming The Environment”, May 3, 2021, https://www.npr.org/2021/05/03/989984124/a-giant-organic-farm-faces-criticism-that-its-harming-the-environment

Hardly a week goes by, it seems, without a big food company making promises to deliver products from green, sustainable farms. Turning those promises into reality, though, can be complicated. Take Gunsmoke Farms, a vast property that covers 53 square miles just northwest of Pierre, S.D. The food company General Mills, maker of Cheerios, announced in 2018 that it would convert the farm to organic production. The company planned to turn it into an educational hub to teach other farmers "how to implement organic and regenerative agriculture practices." Now, some of Gunsmoke Farms' neighbors say that the farm is doing more environmental harm than good. Among the critics is Dwayne Beck, a soil scientist who manages South Dakota State University's Dakota Lakes Research Station, 40 miles east of Gunsmoke Farms. Beck was skeptical about the project from the beginning. "It scared me, because normally organic [farming] entails lots of tillage, and those soils are very fragile," he said. Farmers often till the soil — breaking it up with tools such as chisel plows or disks — to uproot weeds and get land ready for planting. But tillage also tears soil loose from the plant roots that help hold it together and also breaks down parts of the soil that are most rich in carbon and nutrients. This is especially true of soils where Gunsmoke Farms is located, Beck said. The area developed from an ancient ocean floor, and the soil is full of clay. "Once you disturb it, nothing holds that soil together. It just turns into powder," he said, vulnerable to rain or wind that can carry it away. This used to happen regularly in western South Dakota. Beck recalls dust storms so thick, cars crashed because drivers couldn't see vehicles just in front of them. Those dust storms happen less often now because over the past two decades, many farmers in the region abandoned regular tillage. They now use planting equipment that slices into undisturbed soil and places seed in the ground. To control weeds, these farmers use herbicides. But chemical weed control isn't an option for an organic business such as Gunsmoke Farms. During the farm's three-year transition to organic status, its managers grew primarily alfalfa, which doesn't require annual planting. In 2020, though, they planted their first crops of wheat and peas, which involved tilling the enormous fields. Months later, Beck said his fears were realized. He collected photographs of the damage: small drifts of wind-blown soil in a roadside ditch, and a country road that disappears into a brown cloud of blowing dust. "The soil that blew out of there, it will never be the same as it was before it blew," he said. It won't have the stability and structure of healthy soil, held in place by the roots of plants. Beck and others who live near Gunsmoke Farms said that nonorganic farmers also struggled to control soil erosion in 2020 because of drought and high winds. But the problems at Gunsmoke, they said, were worse. A planting of winter wheat, which was supposed to protect the soil on those fields, failed to grow well. When the Gunsmoke project was just getting off the ground, in 2018, an expert from the U.S. Department of Agriculture's Natural Resources Conservation Service drew up a soil conservation plan for the farm. That plan called for wide strips of native grasses across the farm to help prevent soil from blowing, and for the steepest slopes to stay covered, most years, with crops such as alfalfa that don't require annual planting. Gary Zimmer, an expert on organic farming who collaborated with General Mills in launching the Gunsmoke project, said that he drew up a plan that incorporated many of these measures. But he said much of his plan was never implemented. "It's in a deep hole," Zimmer said, referring to the farm. "I don't know how you get it back out organically. It's hard to farm organically if you do it really well, and have your intensive management. But 30,000 acres, poorly managed, is a really good sign for failure." General Mills doesn't own Gunsmoke Farms or control it directly. It signed a "strategic sourcing agreement" with an investment firm called TPG Sixth Street Partners, an affiliate of the firm TPG, which acquired the land in order to supply General Mills with organic wheat, peas and other crops. Sixth Street later became an independent operation, and it currently owns Gunsmoke. The investors have hired a series of managers to run the farm. General Mills said in a statement to NPR that turning Gunsmoke Farms into a thriving ecosystem "is a journey" and promised continued efforts to minimize erosion and improve soil health there. Sixth Street Partners said in its statement that the farm is "early in the process of regenerating land" and that its mission — organic farming — also provides additional environmental benefits, such as lower use of pesticides and synthetic fertilizer. Ruth Beck, who's married to Dwayne Beck, spent many years as an extension agronomist with South Dakota State University, advising farmers in the area around Gunsmoke Farms. She said it's simply difficult to grow crops organically, on a large scale, in this semi-arid part of the country. "You know, we've got to figure out ways to do that, if that's what people want," she said. "But we aren't there yet." At Gunsmoke, she said, environmental marketing got ahead of what farmers can actually do.

#### There are many organic agricultural products—including meat—that are harmful for the environment.

Lardieri 18

Alexa Lardieri (Journalist for US News), US News and World Report, “Organic Food Is Worse for the Climate Than Non-Organic Food”, December 13, 2018, https://www.usnews.com/news/national-news/articles/2018-12-13/study-organic-food-is-worse-for-the-climate-than-non-organic-food

Organic food has a larger impact on the climate than conventional food because of the greater area of land required to farm it. A study published Wednesday in the journal Nature found that farming organic food can result in much higher emissions than non-organic farming. According to a press release from Chalmers University of Technology in Sweden, researchers discovered that farming organic peas resulted in a 50 percent larger climate impact than farming non-organic peas. Additionally, some organic food has an even greater climate impact. Organic Swedish winter wheat results in a 70 percent increased impact. The reason behind this is that much less organic food can be grown in an area than conventional food. The press release states that "organic food is so much worse for the climate [because] the yields per hectare are much lower," mostly due to the fact that fertilizers aren't being used. This results in much more land required to produce the same amount of food, thus worsening its effect on the environment. "The greater land-use in organic farming leads indirectly to higher carbon dioxide emissions, thanks to deforestation," Stefan Wirsenius co-author of the study said. "The world's food production is governed by international trade, so how we farm in Sweden influences deforestation in the tropics. If we use more land for the same amount of food, we contribute indirectly to bigger deforestation elsewhere in the world." It's not just vegetables and grains, organic meat and dairy products are also worse for the environment than their non-organic counterparts. Producing organic meat and milk requires the use of organic feeds, which take up more land than non-organic feed. Although Wirsenius explained this concept, researchers did not conduct specific calculations on meat and milk.

#### The production of organic meat is just as bad for the climate.

Carrington 20

Damian Carrington (Environment Editor at the Guardian), The Guardian, “Organic meat production just as bad for climate, study finds”, December 23, 2020, https://www.theguardian.com/environment/2020/dec/23/organic-meat-production-just-as-bad-for-climate-study-finds

The cost of the climate damage caused by organic meat production is just as high as that of conventionally farmed meat, according to research. The analysis estimated the greenhouse gas emissions resulting from different foods and calculated how much their prices would need to rise to cover the harm they cause by fuelling the climate emergency. For beef and lamb, organic and conventional production resulted in similar climate costs, the study found. Organic chicken was slightly worse for the climate and organic pork slightly better than their conventional counterparts. Conventional livestock’s emissions come from their manure and, for cows and sheep, by burping methane. The grain they are fed can also result in high emissions, especially if it is associated with deforestation, such as in South America. Organic livestock are not fed imported fodder and are often grass-fed, but this means they produce less meat and grow more slowly, therefore spending longer emitting greenhouse gases before slaughter, the researchers said. Plants grown organically have half the climate costs of conventional produce as they do not rely on chemical fertilisers, but all plants have far lower emissions than animal products.

### Extension: Pandemic

#### The Pandemic has led to labor shortages and supply chain issues.

Ellyatt 21

Holly Ellyatt (Journalist for CNBC), CNBC, “There are millions of jobs, but a shortage of workers: Economists explain why that’s worrying”, October 20, 2021, https://www.cnbc.com/2021/10/20/global-shortage-of-workers-whats-going-on-experts-explain.html

The Covid-19 pandemic is not only having a seismic impact on global public health but also causing chaos for the economy, with supply chain disruptions and labor shortages a big problem for businesses around the world. Shifts that have taken place in the labor market are becoming more pronounced, with many people voluntarily quitting roles just as demand for workers rises as economies reopen. Economists say changing demographics like ageing and retiring workers are a factor behind the shortages, as well as border controls and immigration limits, and demands for better pay and flexible working arrangements. The latest labor data from the U.S., for example, shows that more workers are willing to walk away from their jobs or to switch employment. The most recent U.S. Labor Department’s monthly Job Openings and Labor Turnover Survey, released last week, showed there were 10.4 million job openings in August whereas the number of people leaving their jobs (the so-called “quits rate”) rose to 4.3 million, the highest level seen on records dating back to Dec. 2000. Sectors particularly affected by workers quitting their jobs were accommodation and food services, wholesale trade and state and local government education. The problem is not just a U.S. one, with many countries around the world experiencing a shortage of workers. It matters because it’s exacerbating supply chain disruptions around the globe, with key industries struggling to regain momentum due to a lack of workers or raw materials. This disrupts both local and global production and supply networks, hampering economic growth and causing product and service shortages for consumers.

#### Long COVID has created a labor shortage by keeping millions of Americans out of work.

Bach 22

Katie Bach (Nonresident Senior Fellow at Brookings), Brookings, “Is ‘long Covid’ worsening the labor shortage?”, January 11, 2022, https://www.brookings.edu/research/is-long-covid-worsening-the-labor-shortage/

With 10.6 million unfilled jobs across the country, the months-long labor shortage is weighing on the U.S. economy. Small businesses are losing money due to understaffing. Local governments are struggling to fill jobs. Investors are spooked, and corporate profits are taking a hit. Economists have proposed a number of explanations, including a decline in workers’ willingness to tolerate low pay and poor working conditions, lack of access to child care, concerns about contracting COVID-19, higher household savings, and demographic and immigration trends. Yet they rarely mention long Covid. The Centers for Disease Control and Prevention estimates that through October 2021, just over 100 million Americans between the ages of 18 and 64 have contracted COVID-19. And studies suggest that between 27% and 33% of COVID-19 patients still experience symptoms months after infection. That means 31 million working-age Americans—more than one in seven—may have experienced, or be experiencing, lingering COVID-19 symptoms. t may not be the case that all 31 million are still sick; some may have recovered. Understanding how many people have long Covid at any given time requires an assumption about average illness duration. In the U.K., which is doing a much better job collecting data than the U.S., more than 70% of people with persistent COVID-19 symptoms have been sick for more than three months, and more than one-third have been sick for at least a year. This chronicity is consistent with other post-viral illnesses, which behave similarly to long Covid and often last for years. To be conservative, this analysis assumes the 31 million long Covid patients stayed sick for an average of three months.[2] That means that about 4.5 million may have been sick at any given time over the past 20 months. Not all of these 4.5 million people would have stopped working. Two studies of long Covid patients found that 23% and 28%, respectively, were out of work due to long Covid at the time of the study. That suggests there may have been about 1.1 million Americans not working due to long Covid at any given time. Additionally, some long Covid patients reduced hours rather than taking time off: 46% according to a study in The Lancet. That is another 2.1 million workers. If those workers reduced their hours by only a quarter, that would increase the labor market impact to 1.6 million full-time equivalent workers. In other words, under reasonable assumptions given the data available, long Covid could account for 15% of the nation’s 10.6 million unfilled jobs.

#### The Pandemic is causing inflation, which especially impacts food prices.

Spike, Wiseman, and Gera 21

Justin Spike, Paul Wiseman, and Vanessa Gera (journalists for the AP), Associated Press, “Food, gas prices pinch families as inflation surges globally”, November 29, 2021, https://apnews.com/article/coronavirus-pandemic-lifestyle-health-business-poland-f559465c6a822d12b2dd513f122d5a31

From appliance stores in the United States to food markets in Hungary and gas stations in Poland, rising consumer prices fueled by high energy costs and supply chain disruptions are putting a pinch on households and businesses worldwide. Rising inflation is leading to price increases for food, gas and other products and pushing many people to choose between digging deeper into their pockets or tightening their belts. In developing economies, it’s especially dire. “We’ve noticed that we’re consuming less,” Gabor Pardi, a shopper at an open-air food market in Hungary’s capital, Budapest, said after buying a sack of fresh vegetables recently. “We try to shop for the cheapest and most economical things, even if they don’t look as good.” Nearly two years into the COVID-19 pandemic, the economic impact of the crisis is still being felt even after countries raced out of debilitating lockdowns and consumer demand rebounded. Now, another surge of infections and a new coronavirus variant, omicron, are leading countries to tighten their borders and impose other restrictions, threatening the global economic recovery. Omicron has raised new fears that factories, ports and freight yards could be forced to close temporarily, putting more strain on global commerce and sending prices even higher. “A new round of infections could further aggravate supply chains, putting even more upward pressure on inflation,” said Rubeela Farooqi, chief U.S. economist at High Frequency Economics. The economic reverberations are hitting central and Eastern Europe especially hard, where countries have some of the highest inflation rates in the 27-nation European Union and people are struggling to buy food or fill their fuel tanks. A butcher at the Budapest food market, Ildiko Vardos Serfozo, said she’s seen a drop in business as customers head to multinational grocery chains that can offer discounts by buying in large wholesale quantities. “Buyers are price sensitive and therefore often leave us behind, even if our products are high quality. Money talks,” she said. “We notice that inflation is not good for us. ... I’m just glad my kids don’t want to continue this family business, I don’t see much future in it.” In nearby Poland, Barbara Grotowska, a 71-year-old pensioner, said outside a discount supermarket in the capital of Warsaw that she’s been hit hardest by her garbage collection fee nearly tripling to 88 zlotys ($21). She also lamented that the cooking oil she uses has gone up by a third of its price, to 10 zlotys ($2.40). “That’s a real difference,” she said. The recent pickup in inflation has caught business leaders and economists around the world by surprise. In spring 2020, the coronavirus crushed the global economy: governments ordered lockdowns, businesses closed or slashed hours and families stayed home. Companies braced for the worst, canceling orders and putting off investments. In an attempt to stave off economic catastrophe, wealthy countries — most notably the United States — introduced trillions of dollars worth of government aid, an economic mobilization on a scale unseen since World War II. Central banks also slashed interest rates in a bid to revive economic activity. But those efforts to jump-start economies have had unintended consequences: as consumers felt more emboldened to spend the money they had received through government assistance or low-interest borrowing, and vaccine rollouts encouraged people to return to restaurants, bars and shops, the surge in demand tested the capacity of suppliers to keep pace. Ports and freight yards were suddenly clogged with shipments, and prices began to rise as global supply chains seized up — especially as new outbreaks of COVID-19 sometimes shut down factories and ports in Asia. The rise in prices has been dramatic. The International Monetary Fund predicts that world consumer prices will rise 4.3% this year, the biggest jump since 2011. It is most pronounced in the developing economies of central and Eastern Europe, with the highest annual rates recorded in Lithuania (8.2%), Estonia (6.8%) and Hungary (6.6%). In Poland, one of Europe’s fastest-growing economies, inflation came in at 6.4% in October, the highest rate in two decades. Several shoppers at a vegetable stand in Warsaw said they are anxious about rising prices for staples like bread and are expecting the situation to get worse in the new year, when energy prices are set to rise. Piotr Molak, a 44-year-old vegetable vendor, said he has not yet had to raise prices on the potatoes, apples or carrots he sells but the cherry tomatoes he imports from Spain and Italy, which he buys in euros, have gotten far more expensive as Poland’s currency, the zloty, has weakened. “We will mostly feel this in the new year when electricity goes up,” Molak said. “We are really going to feel it when we have to spend more on our home than on pleasure.” The weakening of currencies across central and Eastern Europe against the U.S. dollar and euro is pushing up the price of imports and fuel and exacerbating the pinch from supply backups and other factors. Hungary’s currency, the forint, has lost around 16% of its value against the dollar in the last six months and slipped to a historic low against the euro last week. That’s part of a strategy by Hungary’s central bank to keep the country competitive and attract foreign companies seeking cheap labor, said Zsolt Balassi, a portfolio manager at Hold Asset Management in Budapest. But prices on imported goods have skyrocketed, and global oil prices set in U.S. dollars have pushed fuel costs to record levels. “As the Hungarian forint, and actually all regional currencies, are more or less constantly weakening, this will constantly raise oil prices in our currencies,” Balassi said. In response to record fuel prices, which peaked this month at 506 forints ($1.59) for gasoline and 512 forints ($1.61) for diesel per liter, Hungary’s government announced a 480-forint ($1.50) cap at filling stations. While giving some relief, Hungary’s upcoming elections, in which the right-wing governing party faces the most serious challenge since it was elected in 2010, were likely a factor, Balassi said. “This is obviously a political decision which has huge economic disadvantages, but probably it makes the households happy,” he said. The political nature of some economic decisions is not limited to Hungary. Poland’s government promised tax cuts on gasoline and electricity and subsidies to the hardest-hit households. Poland’s central bank, also facing a weakening currency, has been accused by critics of allowing inflation to rise too high for too long to encourage economic growth and bolster support for the ruling party. The bank surprised markets with the timing and size of two interest rate hikes in October and November in a bid to ease prices, while Hungary’s central bank has raised rates in smaller increments six times this year. Still, if central banks move too aggressively too soon to control inflation, it could short-circuit the economic recovery, said Carmen Reinhart, chief economist at the World Bank. She worries about higher food prices that primarily hurt the poor in developing countries, where a disproportionate share of family budgets goes toward keeping food on the table. “Food prices are a barometer for social unrest,” Reinhart said, noting that the Arab Spring uprisings that began in 2010 were caused partly by higher food prices. Anna Andrzejczak, 41, was still a child when Communism ended in Poland in 1989 and has only a vague memory of the hyperinflation and other economic “tumult” that came with the transition to a market economy. But she feels the prices going up “every time I fill my tank,” with fuel costs having risen some 35% in the last year. “We’ve had a period of stability in past years, so this inflation now is a big shock,” Andrzejczak said. “We don’t have the price increases that we had then, but I think this will cause big stress.”

#### Covid-19 has exacerbated food insecurity.

Feeding America 21

Feeding America, “The Impact of the Coronavirus on Food Insecurity in 2020 & 2021”, March 2021, https://www.feedingamerica.org/sites/default/files/2021-03/National%20Projections%20Brief\_3.9.2021\_0.pdf

In early 2020, the novel coronavirus (COVID-19) began to spread across the United States, and one of the results was an economic recession that ended years of declining rates of food insecurity – the lack of access to sufficient food because of limited financial resources. This brief provides a snapshot of food insecurity at the national level leading up to the COVID19 pandemic, what transpired in the first year of the pandemic, and what may happen in the next year and beyond. 1 KEY FINDINGS 1. Feeding America projects that 42 million people (1 in 8), including 13 million children (1 in 6), may experience food insecurity in 2021. 2. This is a slight improvement from our updated 2020 projections (45 million people and 15 million children). 3. Many people who have been most impacted by the pandemic were food insecure or at risk of food insecurity before COVID-19 and are facing greater hardship since COVID-19. 4. Significant racial disparities in food insecurity which existed before COVID-19 remain in the wake of the pandemic. Feeding America projects that 21% of Black individuals (1 in 5) may experience food insecurity in 2021, compared to 11% of white individuals (1 in 9). 5. It will likely take time for food insecurity levels to recover

### Misc:

#### Laborers on organic farms endure harmful conditions.

Borges and Huet 20

Anelies Borges and Natalie Huet (journalists), Euro News, “Invisible workers: Underpaid, exploited and put at risk on Europe’s farms”, July 22, 2020, https://www.euronews.com/my-europe/2020/07/17/invisible-workers-underpaid-exploited-and-put-at-risk-on-europe-s-farms

The Larrère farms are major producers of organic carrots in France, with annual sales of around €50 million. They receive more than €300,000 in European CAP subsidies each year, according to government data. We spoke to more than a dozen people who worked on these farms. They described long working days, extra hours left unpaid, and excessive housing costs. The family-owned company’s chief executive, Patrick Larrère, emailed a lengthy statement in response to our investigation. He said that since our visit, the company had carried out an internal survey and acknowledged some shortcomings in its organisation, but that most of the respondents planned to return to work on its farms in the future. Larrère added that it would draw up a code of ethics to improve management and working conditions. It promised to provide bedsheets and called on local and national authorities to help with the housing of its workers during the summer tourist season.

#### Organic foods are not much healthier than non-organic foods.

UC Davis Health 19

UC Davis Health, “Are organic foods really healthier? Two pediatricians break it down”, April 5, 2019, https://health.ucdavis.edu/blog/good-food/are-organic-foods-really-healthier-two-pediatricians-break-it-down/2019/04

Is organic food more nutritious than regular food? Organic foods are not healthier, per se, in terms of nutrients. You are still getting the same benefits in conventionally grown foods as you are in organic foods. Organic milk has the same protein, mineral, lipid and vitamin content as normal milk. Nonorganic milk typically has growth hormones, which are specific to each species. So, drinking milk with bovine growth hormone, which is degraded by stomach acid, has no physiological impact on humans. Sex steroids like estrogen may be given to cattle to increase meat yield, making production more efficient for farmers. However, the sex steroid levels are extremely low. Treated and untreated cattle have about the same level of sex steroids. It is possible that when combined with other sex steroids, certain people can be susceptible to harm. Antibiotics can also be used to promote growth in livestock. They are similar to those used in humans but are not meant to treat health issues. This use of antibiotics increases the development of drug-resistant bacteria, which can be transmitted to humans, making it harder to treat infections. Increased exposure to pesticides can lead to increased risk of ADHD and autism. It is also linked to reduced cognitive skills, ability to learn and memory. Exposure to pesticides may lead to the development of Parkinson’s disease, fertility issues and cognitive decline later in life. There is also a potential link between cancer and pesticides. In 2015, the International Agency for Research on Cancer classified three common pesticides as carcinogenic. The primary exposure in humans was through diet. Organic diets we know lead to less pesticide and antibiotic exposure, but nutritionally, they are about the same. In addition, there’s no evidence of clinically relevant differences between organic and conventional milk. There isn’t a concrete study that proves organic foods lead to healthier children. But eating organic is an advantage since we know pesticides can lead to neurodevelopmental issues and are strongly associated with cancer.

#### The US regulates pesticides.

National Pesticide Information Center 20

National Pesticide Information Center, “Federal Pesticide Regulation”, September 22, 2020, http://npic.orst.edu/reg/regfed.html

In the United States, the Environmental Protection Agency (EPA) regulates pesticides at the national level. Congress gives the EPA this authority through several federal laws, including the Federal Insecticide, Fungicide and Rodenticide Act (FIFRA). By regulating pesticides, the EPA works to protect human health and the environment. The EPA works cooperatively with state agencies to review pesticide safety data and register pesticide products, educate professional applicators, monitor compliance, and investigate pesticide problems. Other areas of focus include pesticide and agricultural worker safety, endangered species and pollinator protection, reducing pesticide drift, and reporting pesticide incidents. Regional EPA offices can provide guidance on importing and exporting pesticides to and from United States. Other federal agencies also work with the EPA. The FDA and USDA help ensure food safety, while the BLM and US Fish and Wildlife Service assess the risks of pesticides to wildlife and the environment. For more information on how various federal agencies contribute to pesticide regulation, choose from these topics: