



*Action Steps*

## **Neglecting nutrition: How a pandemic has exposed health disparities in the rural U.S.**

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### **Poor nutrition threatens civilizations**

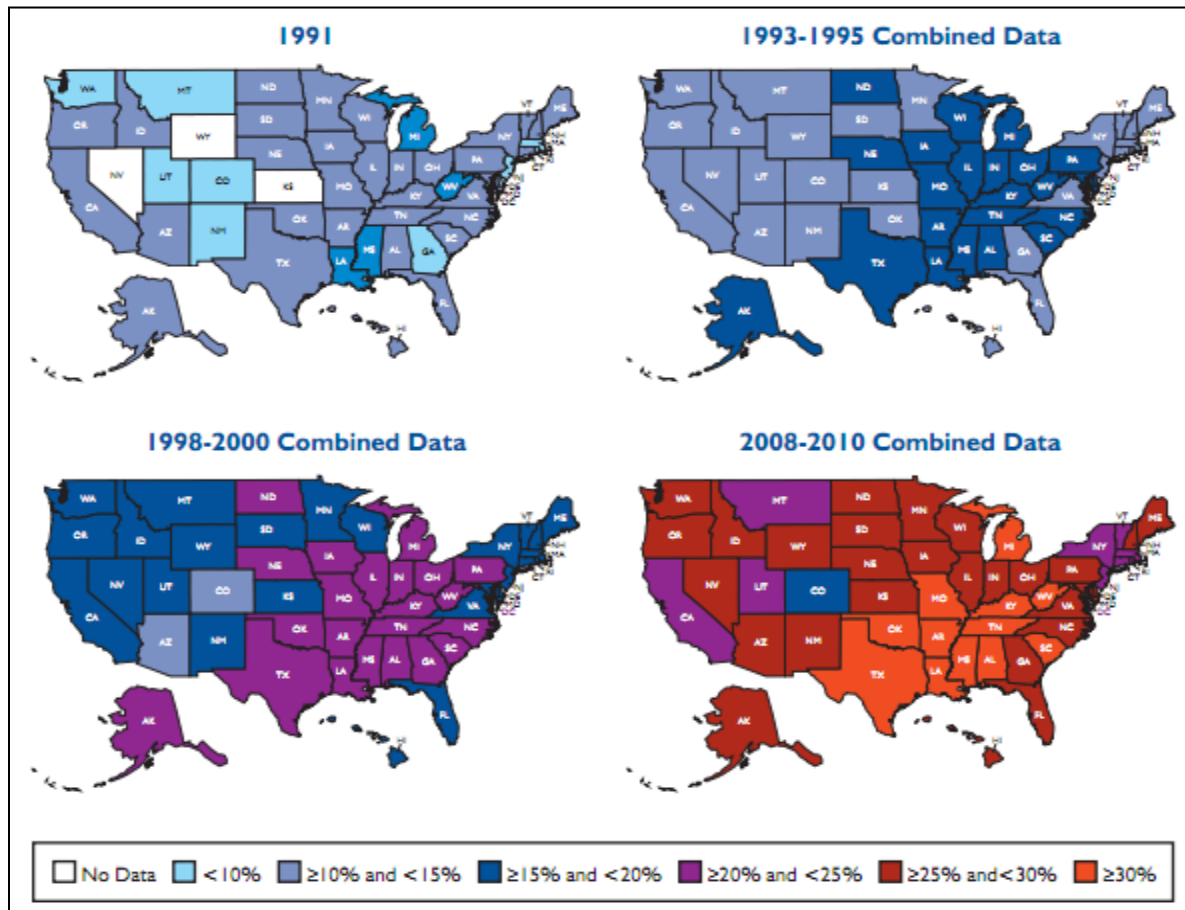
PANDEMICS LIKE COVID-19 AREN'T NEW. History shows pandemics are almost always the result of human activity. When many a society became agriculturally successful, populations grew in size and geographical expanse. Such success puts pressure on a society to expand out even more and intensify its agricultural production. But once resources are finally depleted and the ecology of a region can no longer support the production of calories or the diversity of food humans need, the health of the population declines.

A weakened human population in turn becomes more susceptible to contracting infectious diseases, including from bacteria and viruses that spill over from wild animals inhabiting the newly exploited landscape or from the livestock now grown there. Even the most prominent of empires have been caught in such cycles. The combination of a changing climate and infectious diseases brought down the Roman Empire and now, it seems, threatens our own civilization.<sup>1</sup>

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BEHAVIORAL RISK FACTOR SURVEILLANCE SYSTEM / CDC

Obesity trends among U.S. adults as defined for BMI>30 or about 30lbs overweight for a 5'4" person). BRFSS 1991, 1993-1995, 1998-2000, and 2008-2010 combined data.

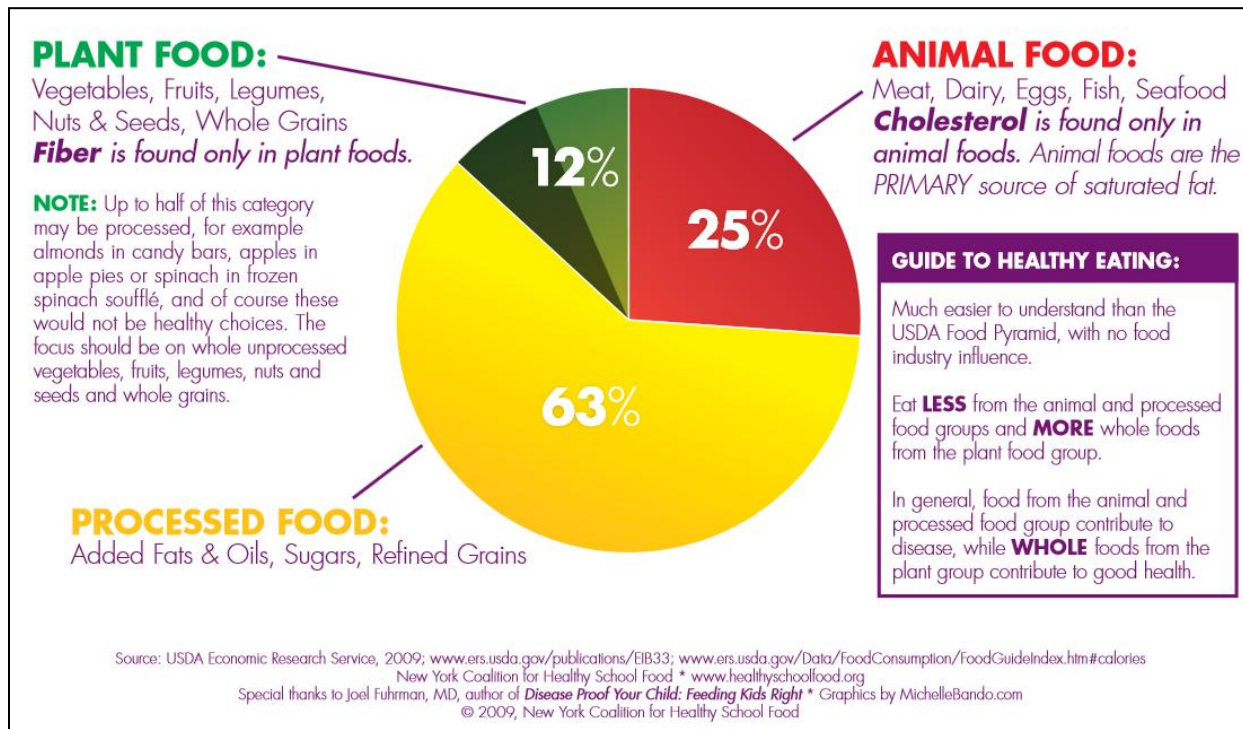
Our society is confronted by an added difficulty. Our way of production has accelerated our exposure and vulnerability to illness at a scale never before seen even across humanity's difficult history. A rise in the demand for meat, propagated by powerful industrial food production companies placing profit first, has resulted in converting grasslands and forests to industrial farmland, encroaching on wildlife, and threatening the balance of the ecosystem. These global conglomerates bet their fortunes on a few heavily subsidized grain commodities. They also drive the increasing development of large animal confinement systems that, in turn, are used to justify even more grain production to feed their livestock. The resulting monoculture production leads to the rapid collapse of important ecological systems on which humanity depends.

This rapid shift to industrialized agriculture is contributing to topsoil loss and nitrogen fertilizer run-off. The resulting damage is degrading waterways and native wildlife habitat, which in the U.S. is helping form the dead zone in the Gulf of Mexico. Industrialization is also a major contributor to global emissions and is dumping carcinogenic chemicals such as Roundup (glyphosate) into the everyday human diet.<sup>2</sup> All of these issues impact our health and well-being.

There's another major problem. Industrial ag produces convenient and heavily processed, foods that while tasty are devoid of good nutrition. The trend has culminated in a population in which 70% of people are overweight or obese and 60% of those obese are malnourished.<sup>3</sup>

**Both chronic and infectious diseases prey upon the poor**

THE LINK BETWEEN PROPER NUTRITION AND GOOD HEALTH cannot be underestimated. Right now,



NEW YORK COALITION FOR HEALTHY SCHOOL FOOD

**U.S. food consumption as percents of calories.**

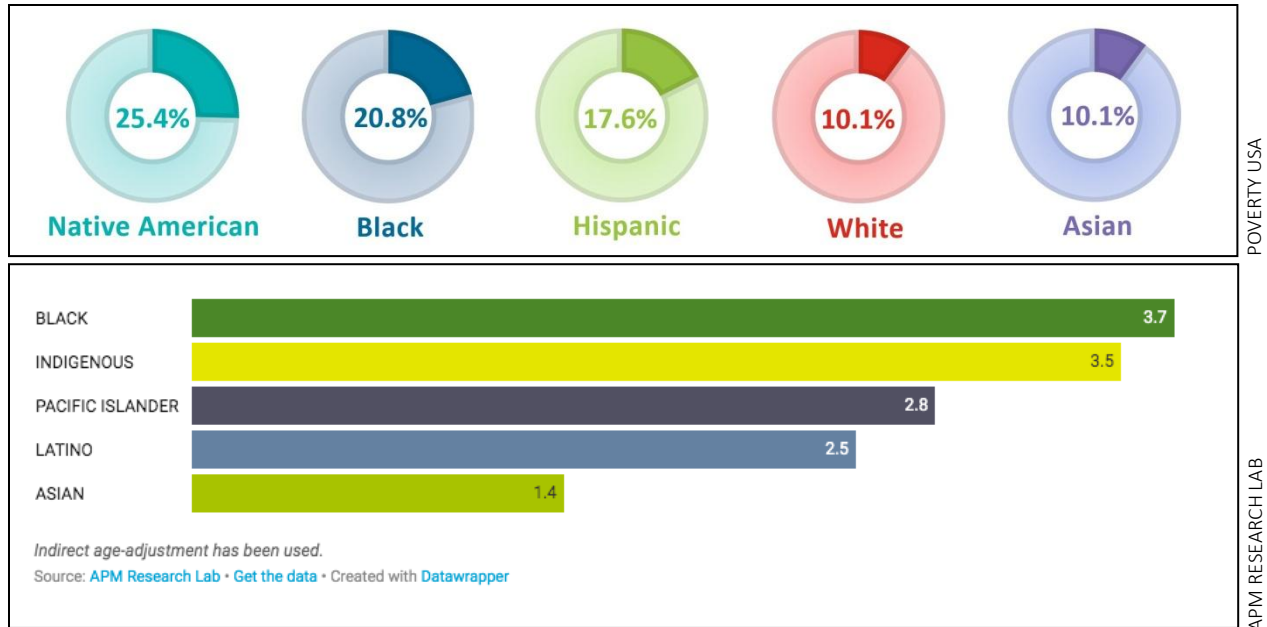
during the pandemic, the American people appear vulnerable to COVID-19 infections because of high rates of underlying chronic disease, which in large part are due to disproportionately more people lacking proper nutrition. Approximately half of U.S. adults have at least one chronic condition, and 25% of U.S. adults have two or more. Overall, evidence suggests that consumption of ultra-processed foods may be associated with increased risk of obesity, total cholesterol, and risk of hypertension.<sup>4</sup> Obesity, accelerated by poor nutrition, is linked to heart disease, type 2 diabetes, and high blood pressure.

These underlying risks are geographically uneven. Those who live in rural areas face numerous health disparities when compared to their urban counterparts.<sup>5</sup> Rural Americans are more likely to die from chronic diseases such as heart disease, cancer, chronic lower respiratory disease, and stroke. Rural residents have higher rates of cigarette smoking, high blood pressure, and obesity than urban residents. To further exacerbate the problem, rural people have higher rates of poverty, less access to healthcare, and are less likely to have health insurance. Such a deadly recipe makes our rural populations extremely susceptible to new disease or illness.

Those who live in poverty, more often people of color by proportion, are significantly more likely to have, and to die from, chronic diseases related to poor nutrition—further compounding the relationship between poor nutrition and those most vulnerable to infectious diseases, including COVID-19. According to 2018 U.S. Census data, 25% of Native Americans, 21% of Black Americans and 18% of Hispanics live in poverty compared to 10% of Asian and white Americans.<sup>6</sup> Black, Indigenous, and people of color or BIPOC also experience earlier onset of chronic disease, greater severity of disease, and poorer survival rates, compared with white Americans.<sup>7</sup>

The underlying differences in structural exposures may explain in part why Black Americans are dying from COVID-19 at a rate 3.7 times greater than whites and Asians, with Indigenous populations following closely behind at 3.5 times more frequently.<sup>8</sup>

In Iowa, for instance, despite representing only 6% of the population, more than 20% of



a) Poverty by ethnicity, USA. B) Adjusted for age, number of times more BIPOC are likely to die from COVID-19 than white Americans as of July 21, 2020.

COVID-19 patients are Latino.<sup>9</sup> In Washington D.C., Black residents account for 45% of COVID-19 cases, and a staggering 79% of deaths. Likewise, in Georgia, Black residents made up more than 80% of hospitalized COVID-19 patients. In St. Louis, nearly all COVID-19 deaths have been Black.

If people of color had died of COVID-19 only at the same rate as white Americans, as of July 2020, 19,500 Black, 8,400 Latino, 600 Indigenous, and 70 Pacific Islander Americans would still be alive.<sup>10</sup> Such a loss of life is unacceptable.

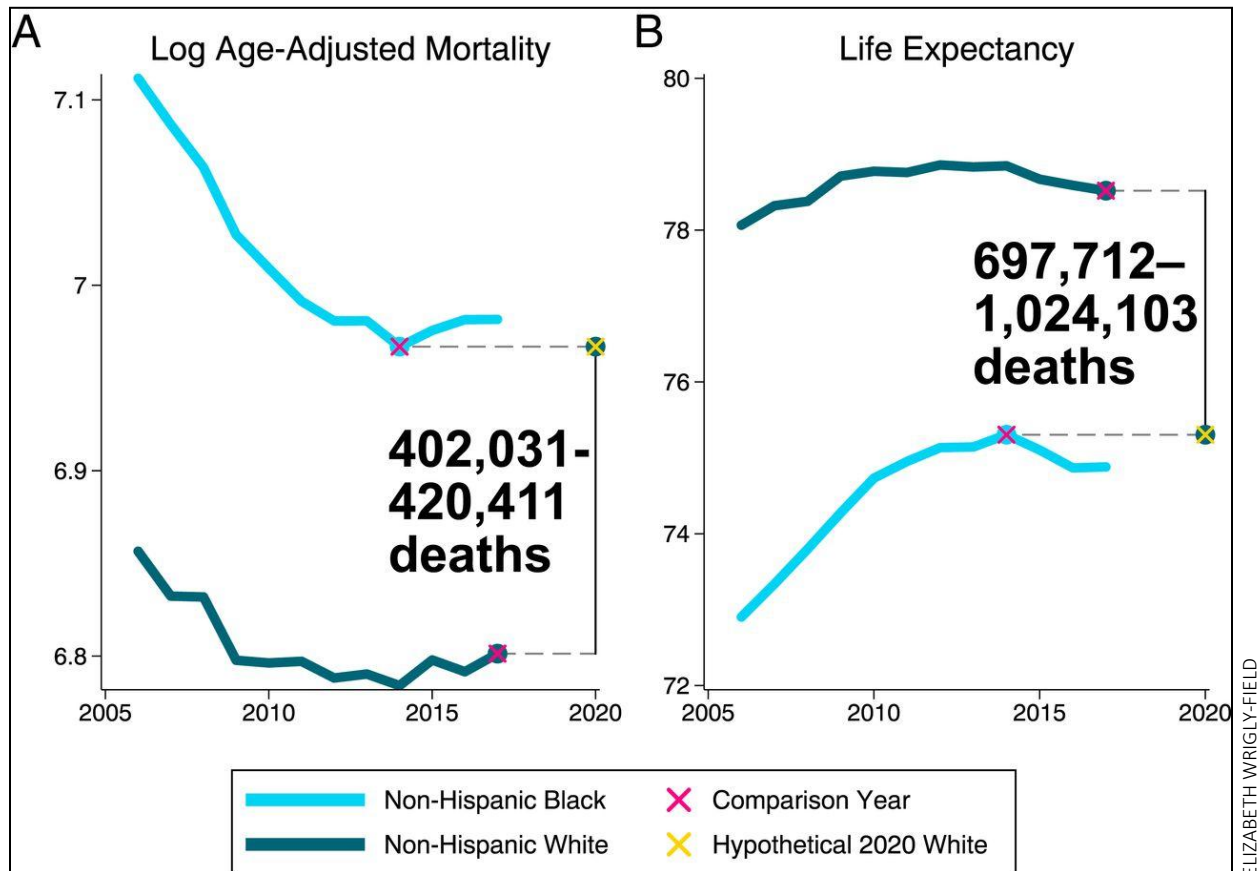
The losses aren't just a matter of a new virus. Such disparities have long been rooted in the structure of the country, long before the pandemic. University of Minnesota's Elizabeth Wrigley-Field showed that it would take 400,000 COVID deaths among white Americans to bring up their mortality rate to the lowest mortality rate Black Americans have ever suffered.<sup>11</sup> Everyday racial inequality is already as deadly as a pandemic.

So the dismal virus-related outcomes are due to the racial disparities rooted in long-term poverty and chronic diseases of poor nutrition, as well as years of exposure to environmental discrimination—pollution of the air and water by industries that are more likely to operate in poverty-stricken and minority towns and neighborhoods. These combos of inequality appear to increase the resulting health damage.<sup>12</sup>

The pandemic is imprinting itself on these disparities in food-related health. It has exposed our vulnerabilities to the current industrial food supply chain on three sides: production, distribution, and consumption. It doesn't matter if you are in rural America, on Indigenous land, or in the inner city, access to highly nutritious food is not easily attainable.

Most Americans consume something very different from previous generations' diets, which were most likely directly sourced from a regional farmer or rancher. Food is now likely to be processed by a multinational industrial company, and exported out around the world before arriving at the dinner table. Emphasis is placed on preservation and packability first before nutrition and freshness. Such a system is most likely a long-term detriment to population health, as well as a detriment to the environment that we all share and depend on to grow our food and draw our nutrition.

At the local scale, the unavailability of fresh whole foods, such as fruits, vegetables, whole



a) Age-adjusted COVID mortality that would be necessary to bring white American death rates up to the best it's ever been for Black Americans. B) The number of excess deaths that would bring white American life expectancies down to expectancies for Black Americans.

grains, and legumes is also due to the absence of grocery stores or marketplaces nearby. In low-income neighborhoods, grocery stores are often few and far between. These areas, often with a high proportion of African American residents, are characterized as “food deserts” or, given their social origins, “food apartheid”. Food deserts are defined as an area that has a poverty rate of 20% or higher and where a third of the population lives more than one urban mile or ten rural miles from the nearest supermarket or large grocery store.<sup>13</sup> But even when access to highly nutritious food is on offer, the food is often too expensive given people’s incomes.

The industrial food system threatens the health and well-being of millions of people on any day, but now, given the infectious nature of diseases such as COVID, also puts the whole of our society at even greater risk.

### One solution lies in the soil

FOOD FAILURES DON’T START ON THE STORE SHELF. The U.S.’s heavily subsidized production system, which artificially lowers the price of crops such as corn and soy, is producing food primarily for confined animal feeding operations instead of direct human consumption. Such a bare ecosystem is energy-intensive, lowers the soil’s capacity for storing carbon, and threatens the soil’s ability to support growing nutritionally dense foods.

The United Nations warns that there are approximately sixty harvests left should soil degradation from modern agriculture continue at its current rate.<sup>14</sup> Modern agricultural



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**Haymarket Farmers Market in Lincoln, Nebraska. The U.S. should redirect Farm Bill funding away from industrial agricultural systems to regenerative farmers and food systems in order to improve the nation's nutrition and community health and well-being in cities and rural counties alike.**

practices are intensifying desertification of fertile land. Increased desertification means Earth has less ability to store carbon to meet goals for drawing down gas emissions.

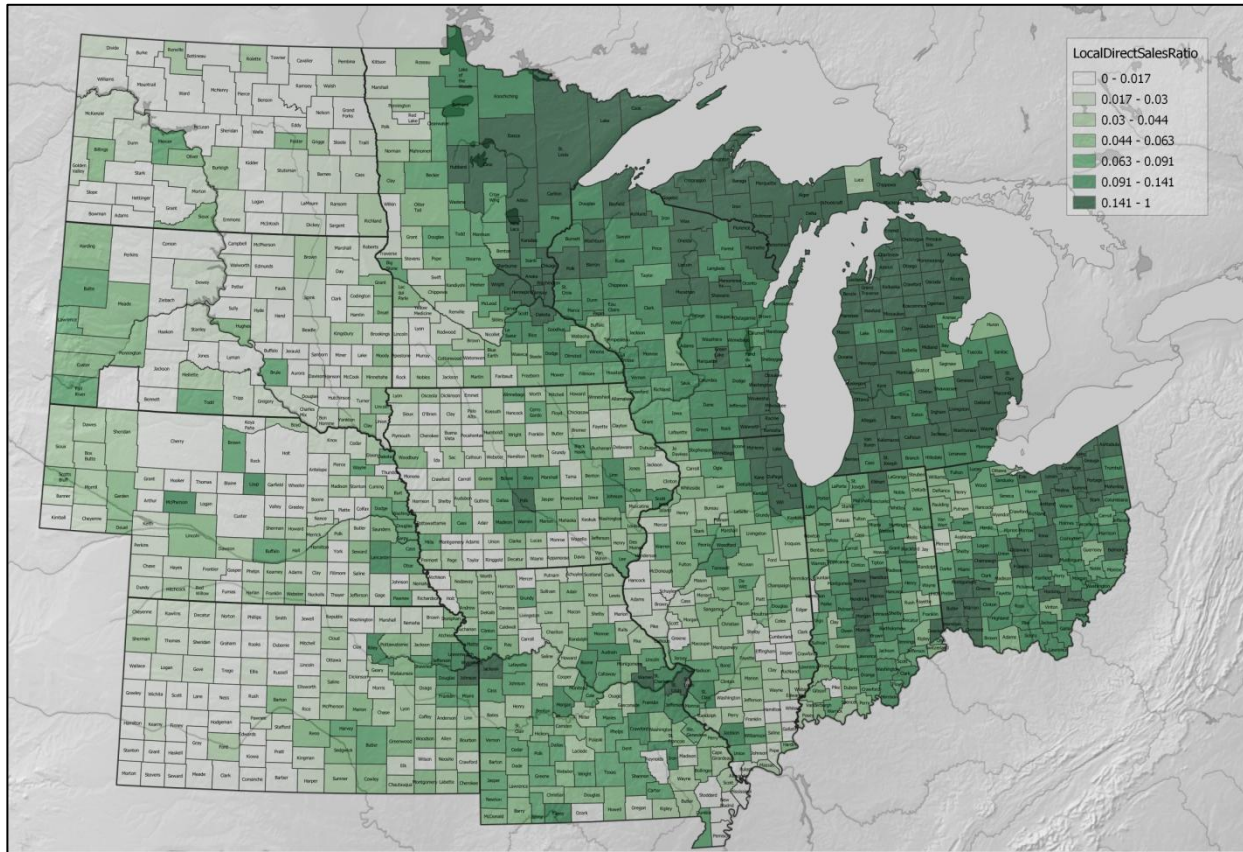
A lesser ability to draw down emissions further increases security risks. Climate change is adding to reductions in water availability and helping drive up food costs.<sup>15</sup> The pressures caused by climate change will influence resource competition while placing additional burdens on economies, societies, and governance around the world. These effects can multiply threats that aggravate stressors, including poverty, environmental degradation, political instability, and social tensions.

There is a better alternative. We can shift towards a biodiverse, regenerative food production system that places more emphasis on integrating perennial and orchard based food systems, increasing soil stability and productivity, and increasing the accessibility to important sources of nutrition like fruits, berries, and nuts food deserts now miss.

Research supports the adoption of diets high in nutrient-dense, whole-plant foods such as fruits, nuts, and vegetables, raised on more biodiverse farms, as a way of preventing and reversing chronic disease and improving immune function. Despite the overwhelming evidence, only 0.9% of adolescents, 2.2% of adult men, and 3.5% of adult women meet their daily recommended needs for fruits and vegetables. Better childhood education around proper nutrition could go a long way.

Clearly the way we raise livestock is important too. Completely eliminating meat from our diets isn't feasible and if all grazing livestock were eliminated, the ecosystem, in need of natural fertilizer and soils grounded underfoot, would fall further out of balance. That said, a transition away from confinement raised livestock and highly processed meats, in favor of a more plant-based diet, would reduce the risk of chronic illness and also have a dramatic impact on greenhouse gas reduction.

How would we be able to make such a fundamental transition to a food system focused on healthy nutrition, environmental health, and farmer autonomy? PReP Rural offers the following



LUKE BERGMANN / MIDWEST HEALTHY AG

Proportion of farms with local and direct sales (including value-added, wholesale, direct to retailers, institutions, and food hubs, and local or regionally branded products). The proportion is scaled 0 to 1 across all twelve Midwest states. Mapped using 2017 USDA census data by Luke Bergmann of University of British Columbia and Regeneration Midwest’s Midwest Healthy Ag project. With some exceptions, there appears a major divide across the Mississippi. Production west of the Mississippi appears more directed to multinational commodity production. There is plenty of room for transitioning to more regionally oriented food systems, even, as the measure is a relative one, in regions coded here as high in local sales.

five action steps forward.

**Five actions now**

1. **Healthcare must be accessible to all, and focus on proper health, nutrition, and illness prevention.** The current healthcare system discriminates against rural people and minorities, who are more likely to be stricken by poverty and less able to afford good health care. The future focus of health care reform must prioritize accessibility to all and be focused on preventing illness with improved nutrition. If nutrition is prioritized instead of the profits of pharmaceutical companies, health care and insurance costs will be greatly reduced, and fewer people will suffer from chronic illness and infectious disease. If health care was more focused on nutrition, more farms could be part of the health solutions, producing more nutritionally dense food on more biodiverse regenerative farming and ranching operations. Everyone would be better off if farmers and their autonomy are treated as an explicit part of population health.
2. **Basic education must prioritize proper soil health nutritional balance, and not be funded by industrial special interests.** Our young people need to better understand where their food

- comes from and how the food they eat impacts their body. Indigenous knowledge of cultural dietary essentials and geographically appropriate food systems must be central to regenerating our communities. Teaching these skills is necessary to healthy living and must be made a priority in our schools again in classrooms and cafeterias alike. Furthermore, the increasing influence of industrial agribusiness in the design and writing of school textbooks must be reversed. School materials based on independent research and sound scientific reasoning should prevail over content distorted by the imperatives of corporate profitability.
3. **Invest in a “Just Transition” away from vertically controlled industrial food systems towards biodiverse regenerative agricultural systems.** It is important to help existing farmers transition safely towards the solution-oriented regenerative model if we are to move to farming systems that grow more food fit for direct human consumption. “Just Transition” also offers new young, diverse regenerative farmers and ranchers an opportunity to get onto the land with a clear pathway to land ownership. The Farm Bill should prioritize support for a risk-averse transition to soil health-based practices for existing and new farmers, which will help restore global soil productivity, lead to rapid drawdown of greenhouse gases, and produce the scale of nutritious food needed for newly emerging regional and local markets.
  4. **Local and regional market systems must be opened up to support healthy food accessibility in all communities.** Federal programs must shift taxpayer-supported funds away from industrially processed foods in favor of regeneratively produced fresh and local foods grown by independent farmers and ranchers directly for human consumption. On the other end of the supply chain, with a few minor program changes to Supplemental Nutrition Assistance Program (SNAP), we can feed the hungry, improve nutrition, and boost the rural farm economy. SNAP dollars are used to purchase products from local producers, which stimulates the local economy. By prioritizing existing resources for SNAP education and outreach to more vulnerable populations, we will ensure that all eligible Americans are participating in the program.
  5. **Reintroduce community control as a mode of health care.** People in places with less community control are documented to mitigate stress with unhealthy diets, including by self-medicating with sugar and salt. In the other direction, self-sufficient communities with the leeway to make their own decisions suffer lower levels of stress and ill-health. Reintroducing farmer autonomy, community socioeconomic resilience, integrated cooperative supply networks, land trusts, distributed processing, investment in the next generation of farmers, including reparations for long-term discrimination, and reversing deeply historical race, class, and gender trauma will reduce the stress and strain that impact rural and urban Americans alike.

With these five interventions, we can alleviate the worst health outcomes for the growing number of Americans and people in other countries who suffer from chronic illness, primarily those living in poverty in rural areas and beyond. By prioritizing improved nutrition, consumers can also help redirect the food production system into a regenerative direction that promotes healthy soils and improves air and water quality. Everyone wins when we prioritize good nutrition. Improving the food system protects our minds, our bodies, and our communities from the conditions that make people more susceptible to COVID-19 and other health exposures.

November 16, 2020

**Pandemic Research for the People** is a crowd-funded effort aimed at conducting research on questions that will directly help communities around the world during the ongoing COVID-19 pandemic. For more information or to donate to the project, please visit the PReP website: <https://www.prepthepeople.net/>.

**Contact.** Feel free to contact PReP Rural at [laura2@gcresolve.com](mailto:laura2@gcresolve.com) or [preporganizer@gmail.com](mailto:preporganizer@gmail.com).



*These dispatches are intended as provocative and informative commentary aimed at galvanizing new thinking around the present pandemic and its causes. The views in this dispatch represent those of the authors and not necessarily that of Pandemic Research for the People.*

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- <sup>1</sup> Harper K (2017) *The Fate of Rome: Climate, Disease and the End of an Empire*. Princeton University Press, Princeton, NJ.
  - <sup>2</sup> Fagan J, L Bohlen, S Patton, and K Klein (2020) Organic diet intervention significantly reduces urinary glyphosate levels in U.S. children and adults. *Environmental Research*, 189:109898.
  - <sup>3</sup> Sigismund L (2015) The true obesity paradox: Obese and malnourished? *Critical Care Medicine* 43(1):240-241.
  - <sup>4</sup> Poti, JM, B Bragam and B Qin (2017) Ultra-processed food intake and obesity: What really matters for health – processing or nutrient content? *Curr Obes Rep.*, 6(4):420–431.
  - <sup>5</sup> Center for Surveillance, Epidemiology, and Laboratory Services (CSELS) (2017) *About Rural Health*. Centers for Disease Control and Prevention. <https://www.cdc.gov/ruralhealth/about.html>.
  - <sup>6</sup> Poverty USA (2020) *Poverty Facts: The Population of Poverty USA*. <https://www.povertyusa.org/facts>.
  - <sup>7</sup> Oates GR, BE Jackson, EE Partridge, KP Singh, MN Fouad, and S Bae (2017) Sociodemographic patterns of chronic disease: How the Mid-South region compares to the rest of the country. *Am J Prev Med.* 52(1S1):S31-S39.
  - <sup>8</sup> APM Research lab staff (2020) The color of coronavirus: COVID-19 deaths by race and ethnicity in the U.S. APM Research Lab, October 15. <https://www.apmresearchlab.org/covid/deaths-by-race>
  - <sup>9</sup> Wade L (2020) From Black Death to fatal flu, past pandemics show why people on the margins suffer most. *Science Magazine*, 14 May. <https://www.sciencemag.org/news/2020/05/black-death-fatal-flu-past-pandemics-show-why-people-margins-suffer-most>.
  - <sup>10</sup> APM Research lab staff (2020) The color of coronavirus: COVID-19 deaths by race and ethnicity in the U.S. APM Research Lab, October 15.
  - <sup>11</sup> Wrigley-Field E (2020) US racial inequality may be as deadly as COVID-19. *PNAS*, 117(36):21854-21856.
  - <sup>12</sup> Kent A, L Ricketts, and R Boshara (2019) *What Wealth Inequality in America Looks Like: Key Facts & Figures*. Federal Reserve Bank of St. Louis. <https://www.stlouisfed.org/open-vault/2019/august/wealth-inequality-in-america-facts-figures>.
  - <sup>13</sup> Economic Research Service (2019) *Documentation: Definitions*. USDA. <https://www.ers.usda.gov/data-products/food-access-research-atlas/documentation/>.
  - <sup>14</sup> Arsenault C (2014) Only 60 years of farming left if soil degradation continues. *Scientific American*, 5 December. <https://www.scientificamerican.com/article/only-60-years-of-farming-left-if-soil-degradation-continues/>.
  - <sup>15</sup> Turrall H, J Burke, and J-M Faures (2008) *Climate Change, Water and Food Security*. FAO, Rome. <http://www.fao.org/3/a-i2096e.pdf>; Misra AK (2014) Climate change and challenges of water and food security. *International Journal of Sustainable Built Environment*, 3(1):153-165; Mbow C, et al. (2019) Chapter 5: Food Security. In *Climate Change and Land: an IPCC special report on climate change, desertification, land degradation, sustainable land management, food security, and greenhouse gas fluxes in terrestrial ecosystems*. IPCC. <https://www.ipcc.ch/site/assets/uploads/sites/4/2020/02/SRCCCL-Chapter-5.pdf>.