# 1NC

## 1NC — Off

### 1NC — T

#### “The” refers to a group as a whole

Webster’s 5 (Merriam Webster’s Online Dictionary, http://www.m-w.com/cgi-bin/dictionary)

4 -- used as a function word before a noun or a substantivized adjective to indicate reference to a group as a whole <the elite>

#### Private sector means all non-governmental persons or entities, including non-profits

Senate Report 95 (Senate Report. 104-1, “UNFUNDED MANDATE REFORM ACT OF 1995,” https://www.congress.gov/congressional-report/104th-congress/senate-report/1 , date accessed 9/10/21)

"Private sector" is defined to cover all persons or entities in the United States except for State, local or tribal governments. It includes individuals, partnerships, associations, corporations, and educational and nonprofit institutions.

#### Topical affs must change a universally-applied standard, like the CWS [Consumer Welfare Standard]

Phillips 18, commissioner on the Federal Trade Commission. (Noah J. November 1, 2018, Before the Federal Trade Commission, “Competition and Consumer Protection in the 21st Century,” https://www.ftc.gov/system/files/documents/public\_events/1415284/ftc\_hearings\_session\_5\_transcript\_11-1-18\_0.pdf)

Our second topic today is the consumer welfare standard. And I think most folks even out in the public know, this is the standard that we use across the board, mergers and conduct in courts and at agencies, to judge anticompetitive conduct. It is not only a standard that we in the U.S. apply, it is a standard that is used by competition agencies around the world. It is an economically-grounded standard, and it requires that there be harm to consumers for conduct to be condemned. Mere harm to competitors is considered insufficient. So let me repeat that again. There has to be harm to consumers, not just competitors. The reason that is so, the reason harm to competitors is considered insufficient is because sometimes a less-efficient firm losing sales or market share to a cheaper, more innovative or efficient rival, can be and often is consistent with vibrant competition and with outcomes that benefit consumers. Courts and agencies have embraced this standard for decades. Today, there are two very important discussions going on about the consumer welfare standard, and they are happening simultaneously. And I think it is important that we understand that there are two conversations going on. One is a continuing discussion about how we apply the standard, regarding whether enforcement is at the appropriate level, whether it is properly targeted. This is an introspective question on some level, in which scholars, economists, practitioners, and enforcers all ask ourselves, are we bringing the right kinds of cases? Are we using the right kinds of evidence? Should we be doing more or less in certain places? The antitrust bar, the business community, and others benefit from this ongoing and active analysis. The second discussion happening now, and the one on which today’s consumer welfare standard panels will focus, is whether the standard is itself the right metric we ought to use in antitrust enforcement and in antitrust law; some argue that enforcement under the consumer welfare standard has failed because of the law, and accordingly, that we should reform the law.

#### Violation: the aff applies exclusively to conduct in a specific segment of the private sector.

#### Vote neg:

#### FIRST---limits and ground---the number of potential subsets is infinite---any industry, product, single companies, individuals---undermines clash. Only big affs have link uniqueness.

#### SECOND----precision---our interp has intent to define, exclude and is in legislative context.

### 1NC — CP

#### The United States federal government should create a special investigator office in the United States Department of Agriculture charged with promoting market competition.

#### That enables the USDA to promulgate effective regulations to promote market competition---the function is identical to antitrust.

Ryan McCrimmon 21, agriculture reporter for Politico, 6/11/2021, “Senators seek USDA special investigator after meatpacking disruptions,” https://www.politico.com/news/2021/06/11/usda-special-investigator-meatpacking-disruptions-493320

Senior farm-state senators are pushing to designate a special investigator at the Agriculture Department to focus on antitrust issues and national security concerns in the meatpacking industry, POLITICO has learned.

The effort stems from the recent ransomware cyberattack against JBS, the world’s largest meat packer, which controls almost a quarter of U.S. beef processing. The shutdown of the company’s U.S. plants last week reignited bipartisan calls for the government to chip away at consolidation in the industry, after a series of disruptions since 2019 that have caused sharp swings in the livestock and meat markets.

Sens. Jon Tester (D-Mont.) and Chuck Grassley (R-Iowa) are filing legislation on Thursday that would create a “special investigator for competition matters” within USDA’s Packers and Stockyards Division. That’s the department’s primary unit in charge of monitoring the meat processing sector for unfair trade practices and monopolistic behavior that can harm producers and consumers.

“It’s really to put some teeth in the Packers and Stockyards Act,” Tester said in a telephone interview, referring to the decadesold antitrust law governing meat and poultry firms. “It will give them subpoena power and the ability to address what I believe are anti-competitive prices by meat packers.”

Retail meat prices have remained high since the pandemic started, because of heavy demand and limited slaughterhouse capacity. But most livestock producers didn’t benefit even as large processing companies were raking in profits.

The new USDA office would include a team of investigators tasked with enforcing antitrust laws in coordination with the Justice Department and Federal Trade Commission.

“This special investigator isn’t about saying, ‘You guys are crooked and we’re going to shut you down,’” Tester said. “It’s about making sure they’re living by the laws that are on the books right now. I don’t think they’re being enforced.”

He pointed as a sign of “nefarious behavior” to recent antitrust actions against top meat packers, such as the $108 million criminal fine paid by JBS subsidiary Pilgrim’s Pride after the poultry processing giant pleaded guilty to fixing prices and rigging bids for broiler chicken products.

JBS separately agreed in March to pay $20 million to settle claims by consumers that the company conspired with competitors to inflate pork prices.

The North American Meat Institute, which represents meat packers, argues that livestock prices are following natural supply and demand factors, such as labor constraints that were exacerbated by the pandemic.

“There are new facilities coming online now that have the same problem as existing packing facilities: a labor shortage,” Sarah Little, a spokesperson for the group, said in an email. “The capacity is not being utilized as fully as packers and producers would like. Drought and higher prices for feed have come together with labor shortages to lower cattle prices for producers.”

Sen. Mike Rounds (R-S.D.) is also cosponsoring the bill, and Tester said he’s spoken to several other senators in both parties about signing on.

The special investigator sought by Tester and Grassley would also serve as a bridge to the Department of Homeland Security on national security threats to the food system.

The JBS hack caused wholesale beef prices to immediately tick higher in the days after the plant closures — highlighting the [vulnerability of a food system](https://www.politico.com/news/2021/06/05/how-ransomware-hackers-came-for-americans-beef-491936) that depends on a small group of dominant companies. The beef facilities were back online within days, but market analysts said that a longer-lasting disruption would have a more drastic impact on consumer prices.

USDA is launching its own effort to bolster the food system, in part by helping small and midsize processors gain a foothold in the industry. Secretary Tom Vilsack has also vowed to reconsider new Packers and Stockyards regulations to improve fairness and transparency in livestock markets.

“There were a number of rules that were pending during the Trump administration that are being reviewed, and there were a number of rules promulgated at the end of the Obama administration that deserve a refresh and a re-look,” Vilsack told reporters on a conference call earlier this week. “The expectation would be over the course of the next several months that we will do just that.”

### 1NC — DA

#### FTC fraud prevention is funded now---unexpected demands trade off

Bilirakis et al. 21 (Gus Michael Bilirakis is an American lawyer and politician serving as the U.S. Representative for Florida's 12th congressional district since 2013; Hon. Noah Joshua Phillips is a Commissioner at the Federal Trade Commission; Hon. Lina Khan is the Chair of the Federal Trade Commission, “Transforming the FTC: Legislation to Modernize Consumer Protection,” *Committee on Energy and Commerce*, 6/28/21, <https://energycommerce.house.gov/committee-activity/hearings/hearing-on-transforming-the-ftc-legislation-to-modernize-consumer>)

Gus Bilirakis (3:12:44): Thank you. Our committee has worked extensively in a bipartisan manner to protect consumers from fraud and scams. Mr. Carter's Combating Pandemic Scams Act was enacted at the beginning of the year thanks to all of our leadership here. Representive Blunt Rochester's Fraud and Scam Reduction Act, as well as Representative Kelly's Protecting Seniors from Emergency Scams Act both cleared our chamber with bipartisan support this year. My bill, HR 2672, the FTC Reports Act, would require the FTC to report on fraud against our seniors. Commissioner Philips, how important is the work the FTC staff does to protect Americans from scams? Noah Josuha Phillips (3:13:33): Congressman, thank you for your question. The work we do to protect American consumers against frauds and scams, is our bread and butter as an agency. There is no work that makes me feel better as a commissioner, when we watch our ability to find bad guys, or taking money from American consumers, dipping into their life savings, and get that money back to them. So the work that you have done on the committee to provide funding, to provide tools for us to go after scam artists, is critical. And I think that needs to continue with the agency. Gus Bilirakis (3:14:05): Thank you, and Chair Khan, again, as you pursue other initiatives, when staff and resources be shifted away from the fraud program, which is so essential in preventing bad actors from harming our constituents? That's the question, please. Lina Khan (3:14:22): Sorry, could you repeat the question - when should services be shifted... Gus Bilirakis (3:14:26): Yes, of course. As you pursue other initiatives, when staff and resources be shifted away from your fraud program, which is so essential in preventing bad actors from harming our constituents? Lina Khan (3:14:40): Well, of course, we're always limited by the appropriations bills when it comes to thinking through how we're delegating resources across the agency. In certain instances, I think there are exigent needs that can arise in certain aspects. Gus Bilirakis (3:14:54): But you don't anticipate moving money from the fraud program, is that correct? Lina Khan (3:15:00): Not especially, but I mean, I think overall, we are trying to look through the prism of managerial efficiency and trying to understand how we can best use our resources, especially given some of the exigent circumstances and so we'll be continuing to make those determinations. Gus Bilirakis (3:15:15): I suggest that you not because this is such a very important program. Commissioner Wilson, can you elaborate on why the FTC Reports Act would also prove beneficial to increasing much needed transparency and the flow of information within the commission?

#### Unplanned expanded enforcement drains finite resources from existing priorities

Dafny 21, Professor of Business Administration at the Harvard Business School and the John F. Kennedy School of Government, and former Deputy Director for Healthcare and Antitrust in the Bureau of Economics at the Federal Trade Commission. Professor Dafny’s research focuses on competition in health care markets, and the intersection of industry and public policy. (Leemore, “The Covid-19 Pandemic Should Not Delay Actions to Prevent Anticompetitive Consolidation in US Health Care Markets,” *Pro Market*, <https://promarket.org/2021/06/10/covid-pandemic-consolidation-pandemic-monopoly/>)

However, as Commissioner Rebecca Slaughter, the current acting FTC chair has noted, these efforts have “faced resistance, with two of these recent victories only coming after district court setbacks.” Blocking a horizontal merger, even when it appears to be an “open and shut” case to a layperson, requires extraordinary resources, including large investigation and litigation teams, as well as economic and other subject matter experts who must analyze the transaction, lay out the case for blocking the merger, and rebut arguments advanced by Defendants’ attorneys and experts. To pick a recent example, consider the proposed merger of two hospital systems in the Memphis area, which the FTC filed to block in November 2020. Based on the FTC’s complaint, the merger would have reduced the number of competing systems from four to three and created a system with over a 50 percent market share. In the face of litigation, the parties abandoned the deal—consistent with this being a straightforward case. Although the FTC prevailed without a trial, it took nearly a year from the merger announcement to the abandonment. Over that period, the FTC likely devoted thousands of staff hours to the investigation and lawsuit and expended substantial taxpayer resources on expert witnesses. The higher the payoff from the merger for the merging parties—and the payoff in the case of an increase in market power can be substantial—the greater the incentive for defendants to invest extraordinary resources to fight a merger challenge. Even if there is only a middling (and in some cases, small) chance of getting a merger through, it may well be in the parties’ interest to see if they can prevail, absorbing the agencies’ (i.e., DOJ and FTC’s) scarce resources in that attempt and preventing them from devoting those resources to investigate other transactions or anticompetitive practices. The substantial resources required to challenge transactions, paired with stagnating enforcement budgets, may explain why authorities have elected not to challenge some horizontal transactions they would likely have challenged in previous eras. Using data on a wide range of industries, antitrust scholar John Kwoka documents that enforcers rarely raise concerns about changes in market structure that used to draw scrutiny—that is, mergers that yield five or more market participants.

#### Fraud funds terror operations

Tierney 18, George & Mary Hylton Professor of International Relations; Director Global Research Institute (GRI) (Michael, “#TerroristFinancing: An Examination of Terrorism Financing via the Internet,” International Journal of Cyber Warfare and Terrorism, vol. 8, no. 1, 01/2018, pp. 1–11)

2. TERRORIST FINANCING AND THE INTERNET

As mentioned, terrorists’ use of the internet has become a major concern for security officials across the world in recent years. Like many other users, terrorists have found that the internet is an invaluable tool to share information quickly, in order to disseminate ideas and link up with likeminded individuals (Jacobson, 2010; Okolie-Osemene & Okoh, 2015). In this manner, terrorists use the internet for a variety of purposes, including recruitment, propaganda, and financing. As scholars have also noted, the internet is an attractive option for extremists due to the security and anonymity it provides (Jacobson, 2010). Yet while there have been a growing number of studies completed on the ways in which terrorist organizations use the internet to recruit and indoctrinate others, there has been relatively little focus on the methods by which terrorists finance themselves through online activities. Some researchers have attempted to fill gaps in this area by broadly studying internet aspects of terrorism financing. However, research on this particular aspect of terrorism financing still appears to be lacking, with little focus on new methods of terrorist financing via the internet or a marrying of strategies to combat online financing trends available to practitioners in the field.

For instance, Sean Paul Ashley (2012) assessed the mobile banking phenomenon, which is prevalent in regions such as the Middle East and Africa, and provides extremists with the ability to easily connect to the internet and remit funds around the world. The decentralization of this kind of banking, due to the fact that brick-and-mortar facilities are not needed to conduct transactions, has allowed terrorist financiersto more efficiently move funds while avoiding detection from authorities. Other researchers,such as MichaelJacobson (2010), have studied the waysin which terrorists engage in cyber-crime to raise and move funds. For example, Jacobson (2010) found that online credit card fraud was a fairly major source of terrorist financing. By stealing a victim’s private credit information, terrorists are able to co-opt needed funds and provide support to themselves or their counterparts. Yet as James Okolie-Osemene and Rosemary Ifeanyi Okoh (2015) note, the internet is mostly used to augment and assist activities which occur in the physical world. In this way, it would appear that the internet is far more useful as a means to move funds globally in support of terrorism, rather than simply as a method to raise funds.

#### Nuclear war---cash is key

Hayes 18, Executive Director of the Nautilus Institute for Security and Sustainability, Ph.D. in Energy and Resources from the University of California-Berkeley, Professor of International Relations at RMIT University (Dr. Peter J., “Non-State Terrorism and Inadvertent Nuclear War”, NAPSNet Special Reports, 1/18/2018, <https://nautilus.org/napsnet/napsnet-special-reports/non-state-terrorism-and-inadvertent-nuclear-war/>)

The critical issue is how a nuclear terrorist attack may “catalyze” inter-state nuclear war, especially the NC3 systems that inform and partly determine how leaders respond to nuclear threat. Current conditions in Northeast Asia suggest that multiple precursory conditions for nuclear terrorism already exist or exist in nascent form. In Japan, for example, low-level, individual, terroristic violence with nuclear materials, against nuclear facilities, is real. In all countries of the region, the risk of diversion of nuclear material is real, although the risk is likely higher due to volume and laxity of security in some countries of the region than in others. In all countries, the risk of an insider “sleeper” threat is real in security and nuclear agencies, and such insiders already operated in actual terrorist organizations. Insider corruption is also observable in nuclear fuel cycle agencies in all countries of the region. The threat of extortion to induce insider cooperation is also real in all countries. The possibility of a cult attempting to build and buy nuclear weapons is real and has already occurred in the region.[15] Cyber-terrorism against nuclear reactors is real and such attacks have already taken place in South Korea (although it remains difficult to attribute the source of the attacks with certainty). The stand-off ballistic and drone threat to nuclear weapons and fuel cycle facilities is real in the region, including from non-state actors, some of whom have already adopted and used such technology almost instantly from when it becomes accessible (for example, drones).[16]

Two other broad risk factors are also present in the region. The social and political conditions for extreme ethnic and xenophobic nationalism are emerging in China, Korea, Japan, and Russia. Although there has been no risk of attack on or loss of control over nuclear weapons since their removal from Japan in 1972 and from South Korea in 1991, this risk continues to exist in North Korea, China, and Russia, and to the extent that they are deployed on aircraft and ships of these and other nuclear weapons states (including submarines) deployed in the region’s high seas, also outside their territorial borders.

The most conducive circumstance for catalysis to occur due to a nuclear terrorist attack might involve the following nexi of timing and conditions:

1. Low-level, tactical, or random individual terrorist attacks for whatever reasons, even assassination of national leaders, up to and including dirty radiological bomb attacks, that overlap with inter-state crisis dynamics in ways that affect state decisions to threaten with or to use nuclear weapons. This might be undertaken by an opportunist nuclear terrorist entity in search of rapid and high political impact.
2. Attacks on major national or international events in each country to maximize terror and to de-legitimate national leaders and whole governments. In Japan, for example, more than ten heads of state and senior ministerial international meetings are held each year. For the strategic nuclear terrorist, patiently acquiring higher level nuclear threat capabilities for such attacks and then staging them to maximum effect could accrue strategic gains.
3. Attacks or threatened attacks, including deception and disguised attacks, will have maximum leverage when nuclear-armed states are near or on the brink of war or during a national crisis (such as Fukushima), when intelligence agencies, national leaders, facility operators, surveillance and policing agencies, and first responders are already maximally committed and over-extended.

At this point, we note an important caveat to the original concept of catalytic nuclear war as it might pertain to nuclear terrorist threats or attacks. Although an attack might be disguised so that it is attributed to a nuclear-armed state, or a ruse might be undertaken to threaten such attacks by deception, in reality a catalytic strike by a nuclear weapons state in conditions of mutual vulnerability to nuclear retaliation for such a strike from other nuclear armed states would be highly irrational.

Accordingly, the effect of nuclear terrorism involving a nuclear detonation or major radiological release may not of itself be *catalytic* of *nuclear* war—at least not intentionally–because it will not lead directly to the destruction of a targeted nuclear-armed state. Rather, it may be catalytic of non-nuclear war between states, especially if the non-state actor turns out to be aligned with or sponsored by a state (in many Japanese minds, the natural candidate for the perpetrator of such an attack is the pro-North Korean General Association of Korean Residents, often called Chosen Soren, which represents many of the otherwise stateless Koreans who were born and live in Japan) and a further sequence of coincident events is necessary to drive escalation to the point of nuclear first use by a state. Also, the catalyst—the non-state actor–is almost assured of discovery and destruction either during the attack itself (if it takes the form of a nuclear suicide attack then self-immolation is assured) or as a result of a search-and-destroy campaign from the targeted state (unless the targeted government is annihilated by the initial terrorist nuclear attack).

It follows that the effects of a non-state nuclear attack may be characterized better as a *trigger* effect, bringing about a *cascade* of nuclear use decisions within NC3 systems that shift each state increasingly away from nuclear non-use and increasingly towards nuclear use by releasing negative controls and enhancing positive controls in multiple action-reaction escalation spirals (depending on how many nuclear armed states are party to an inter-state conflict that is already underway at the time of the non-state nuclear attack); and/or by inducing concatenating nuclear attacks across geographically proximate nuclear weapons forces of states already caught in the crossfire of nuclear threat or attacks of their own making before a nuclear terrorist attack.[17]

### 1NC — K

#### Democratic governance has failed us, allowing for the cybernetic episteme to control all aspects of life — absent an epistemic boycott to cybernetic monopolization, cybernetic capitalism is inevitable, destroying all life on earth and undermining any semblance of reality

Emmelhainz ’21 — Irmgard Emmelhainz (Visiting Scholar, Vermont College of Fine Arts); “Authoritarianism and the Cybernetic Episteme, or the Progressive Disappearance of Everything on Earth;” e-flux journal, Issue #122, November 2021; https://www.e-flux.com/journal/122/430488/authoritarianism-and-the-cybernetic-episteme-or-the-progressive-disappearance-of-everything-on-earth/

By means of the cybernetic episteme, Silicon Valley has shaped the world we all live in. As we are poisoned equally by microplastics and fake news, losing our grasp of a shared reality, the “Silicon Six”—as Sacha Baron Cohen called the titans of Silicon Valley in a 2019 speech—propagate algorithm-fueled fear, propaganda, lies, and hate in the name of profit. As Baron Cohen pointed out, the major online platforms largely avoid the kind of regulation and accountability that other media companies are subject to. “This is ideological imperialism,” he said. “Six unelected individuals in Silicon Valley impos[e] their vision on the rest of the world, unaccountable to any government, and acting as if they are above the law.” He called digital platforms the greatest propaganda machine in history.

Democratic institutions have failed to reign in the information chaos and the destruction of the public sphere. As Shoshana Zuboff argues, we inhabit a communications sphere that is no longer a public sphere. She describes this situation as an “epistemic coup” that has taken place in four stages: First, by way of companies gathering personal data about us and then claiming it as their own private property. Second, through data inequality, which means that companies know more than we do. Third, through the epistemic chaos created by algorithms. And fourth, through the institutionalization of this new episteme and the erosion of democratic governance.

Baron Cohen observes that people can take a stand against platforms by recognizing our power to boycott them. (One example is the mass defection from WhatsApp to Telegram when the former announced that would share its user data with Facebook.) But we also need to defend the existence of facts and a shared reality, understanding the world not as something we see but as something we inhabit—treating life not as something we have, but as something we live. Anti-platform strategies might be accused of Luddism, but they are not necessarily opposed to technology—only to certain uses of technology.

It is also crucial that we regard the cybernetic episteme as inextricable from a broader malaise: humanity’s relationship to life and the planet is a toxic one. The very technologies that supposedly enable us to read, think, flourish, and desire are destroying the world we inhabit.

People continue to yearn for commonality, mutuality, and something to share. But the culture we currently share is largely mediated by repressive, profit-driven digital platforms. This is why we need to flee from the invasion of images, to distinguish between image and reality, and to affirm the opacity of the world and the ambiguity of language. We need to resist platform monopoly through presence, embodiment, immediacy, and human memory. We need to find ways to create life as opposed to turning it into data, combine emotional and intellectual knowledge, and regard visceral gut feelings as a form of human consciousness. We need to learn to exist in symbiosis with others and with the environment, not dislocated, uprooted, and detached.

## 1NC — Industrial Ag

### 1NC — T/L

#### This aff is the epitome of the worst type of policy debate: tying 8 impact scenarios from one random card that cites a bunch of things — hold them to a high threshold to explain most of their impacts

### 1NC — Turn

#### Concentrated ag is the linchpin of innovation – the biggest firms have outsized R&D spending and drive international dissemination.

Fuglie et al, PhDs in Econ, 12

(Keith, Ph.D. and M.S. in Applied Econ from the University of Minnesota, John King, Econ (Industrial Organization) from Vanderbilt University, David Schimmelpfennig, Econ from MSU, senior ERS economists, and Paul Heisey, Ag Econ from the University of Wisconsin-Madison, Rising Concentration in Agricultural Input Industries Influences New Farm Technologies, Economic Research Service, Amber Waves 10(4)) BW

The increase in R&D performed by global agricultural input industries (see “Private Industry Investing Heavily, and Globally, in Research To Improve Agricultural Productivity” in the June 2012 issue of Amber Waves) has coincided with significant changes to the structure of these industries. The largest firms have increased their market shares and account for most of the investment in (and ownership of) new innovations in these industries. Implications of market concentration in the U.S. seed industry were addressed earlier in Amber Waves and in other ERS research (see suggested readings). New ERS data allow a closer look into global market concentration across a number of agricultural input industries. Market Concentration is Increasing in Research-Intensive Agricultural Input Industries Since the 1990s, global market concentration (the share of global industry sales earned by the largest firms) has increased in the crop seed/biotechnology, agricultural chemical, animal health, animal breeding, and farm machinery industries – all of which invest heavily in agricultural research. By 2009, the largest four firms in each of these industries accounted for at least 50 percent of global market sales. Market concentration was particularly high in animal genetics and breeding, where the four-firm concentration ratio reached 56 percent in 2006/07 (the latest year for which data are available). Growth in global market concentration over 1994-2009 was most rapid in the crop seed industry, where the market share of the four largest firms more than doubled from 21 to 54 percent. The top eight firms in all five input sectors had between a 61- and 75-percent share of global market sales by 2009. Factors Driving Market Concentration Vary by Industry Firms increase their market share either by expanding their sales faster than the industry average or by acquiring or merging with other firms in the industry. Firms can expand their sales faster than others in the industry by offering better products or services (often an outgrowth of larger R&D investments), improving their marketing ability, or offering lower prices (often through economies of scale). The leading input firms in 2010 had faster sales growth than the industry average, but a significant amount of that growth came from acquisitions of other firms. Reasons for mergers and acquisitions vary by industry and firm circumstances but include market forces and the emergence of new technologies. Government policies can also affect the ability of firms to compete in markets and their incentives to merge with or acquire other firms.

• In the crop seed and animal breeding sectors, the emergence of biotechnology was a major driver of consolidation. Companies sought to acquire relevant technological capacities and serve larger markets to share the large fixed costs associated with meeting regulatory approval for new biotechnology innovations.

Table

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• In the animal breeding sector, vertical integration in the poultry and livestock industries enabled some large firms to acquire capacity in animal breeding as part of their integrated structure.

• In the farm machinery industry, many of the major mergers and acquisitions can be traced to large financial losses sustained by some leading firms during periods when the farm sector was in prolonged recession, which substantially reduced demand for farm machinery as farmers delayed major capital purchases. Firms experiencing large financial losses are often vulnerable to acquisition.

• The agricultural chemical sector has been heavily affected by changes in government regulations governing the health, safety, and environmental impacts of new and existing pesticide formulations: larger firms appear better able to address these stricter regulatory requirements.

• Consolidation in the animal health sector appears to be largely a byproduct of mergers and acquisitions in the pharmaceutical industry, as most of the leading animal health companies are subsidiaries of large pharmaceutical companies.

The Crop Seed-Biotechnology Industry Has Undergone Significant Structural Transformation In 2009, seven large seed companies each had annual seed sales of over $600 million. Five of these top seed companies--Syngenta, Bayer, Dow, Dupont, and Monsanto- -are also market leaders in agricultural chemicals. A sixth firm, BASF, is making significant investments in crop biotechnology research but so far reports few crop seed or trait sales, although it is a market leader in agricultural chemicals. These companies currently constitute the “Big 6” involved in crop seed, biotechnology, and chemical research. The seed-biotechnology industry has been reliant on small and medium-sized enterprises (SMEs) as sources of new innovation. New SME startups (often spinoffs from university research) tend to specialize in commercial development of a new research tool, genetic trait, or both. Significant entry by SMEs into the seed-biotechnology sector began in the late 1970s and early 1980s, with a second wave of new entrants in the late 1990s and early 2000s. In recent years, exits have outnumbered entrants, and by 2008 just over 30 SMEs specializing in crop biotechnology were still active. The majority of the exits from the industry were the result of acquisition by larger firms. Of 27 crop biotechnology SMEs that were acquired between 1985 and 2009, 20 were acquired either directly by one of the Big 6 or by a company that itself was eventually acquired by a Big 6 company. Concentration in a research-intensive industry can be measured not only in terms of share of product sales but in share of new innovations. Firms that are most successful in creating new innovations are often better positioned to dominate the market (although not all new product introductions will be commercially successful). In research for genetically engineered crop varieties, for example, companies typically obtain a patent first, then initiate field trials, and finally obtain regulatory approval to sell crop seeds. Although there is considerable overlap in terms of companies participating, the markets for crop seeds can be distinguished from markets for genetically modified traits. The shares of these research outputs held by the Big 6 companies in each case are between 55 and 95 percent. Consequences of Concentration For Agricultural Innovation The rising concentration in global agricultural input markets means fewer firms are supplying those inputs to farmers. It also means that fewer firms are responsible for many of the new innovations that drive growth in agricultural productivity. The share of private R&D performed by the largest firms is even larger than their share of sales. In crop seed and biotechnology, eight seed-biotechnology companies accounted for 76 percent of all R&D spending

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by this industry in 2010. In agricultural chemicals, five companies (each with over $2 billion sales in 2010) were responsible for over 74 percent of the R&D in this sector. In farm machinery, four companies (each with over $5 billion in farm machinery sales) accounted for over 57 percent of farm machinery R&D, and in animal health, just eight companies accounted for over 66 percent of R&D. Moreover, all of these leading firms are multinational companies with R&D facilities positioned around the world. These global research networks allow large firms to develop and adapt new technologies to local conditions, meet national regulatory requirements for new product introductions, and achieve cost economies in some of their R&D activities. Greater market power resulting from the structural changes in agricultural input industries means that farmers may pay higher prices for purchased inputs. With stronger legal protection over their intellectual property and fewer firms offering competition, firms can charge higher prices for their new innovations. Such price premiums are necessary to provide firms the means (and incentive) to invest in R&D in the first place, and farmers are willing to pay higher prices so long as the gains from higher productivity outweigh their higher costs. In fact, for the past two decades, the prices of farm inputs have been rising faster than the prices U.S. farmers receive for their crops and livestock. The largest increase over 1990-2010 was in crop seed prices, which more than doubled relative to the price received for agricultural commodities. This increase was due, at least in part, to the value of the new seed traits resulting from research investments made by seed/biotechnology companies. However, higher input prices may also stem from increases in the prices of labor, capital, energy, and other materials used in their manufacture. The sharp rise in the price of fertilizer in 2008-09 was driven by a significant increase in the cost of energy and materials used to make fertilizers, higher transportation costs, and the falling value of the U.S. dollar. Multiple factors contribute to changing prices for farm inputs, and it is difficult to isolate the effects of market power, product quality, and other factors affecting these prices. The growing concentration in agricultural input industries raises a number of issues. One is the inherent tension between public policies regulating intellectual property rights (IPR) and market competition. While antitrust laws restrict firms from exercising monopoly power, some exceptions are made for intellectual property rights over new innovations. However, antitrust rules may still apply

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to how firms license their intellectual property to other firms. Another issue is whether under the current market and policy environment there are significant economies of scale in crop and animal biotechnology, implying that only very large firms can hope to compete effectively in these sectors. This might mean there is a significant barrier to entry for new firms and a potential loss of new innovations, particularly from SMEs. On the other hand, the global reach of the large, multinational agricultural input firms could speed up the rate of international technology transfer and help to close the productivity gaps between regions and countries. The rate of transfer will be influenced by international trade agreements and how countries regulate and protect IPR in new agricultural innovations, especially those involving genetically modified organisms. Finally, public investments in research can be an important enabler of market competition. Examples include public provision of elite parent material for crop/livestock breeding companies and the basic scientific tools necessary for commercial development using genomics and molecular biology.

#### The plan’s uncertainty and disruption to capacity for tech innovation decimates growth of the ag sector

Dr. Don Racheter 17, President of the Public Interest Institute, Master's Degree and Ph.D. in Political Science from the University of Iowa, Taught at the University of Iowa and Central College, “Upcoming Mergers Benefit America's Farmers”, Des Moines Register, 8/6/2017, https://www.desmoinesregister.com/story/opinion/columnists/iowa-view/2017/08/06/upcoming-mergers-benefit-americas-farmers/537250001/

America’s farmers are being challenged to prepare for a global, growing population and a robust international trade market.

Not only has every farmer had to increase the number of people that he or she is responsible for feeding by almost 130 people since 1960, but international markets also are eager for Iowa’s soybeans and other agricultural products.

These market-based problems need specific market-centric solutions. By leaning on the power of an innovative and dynamic private sector, we can ensure our farmers have the tools to compete in any economic climate.

Industry leaders such as Bayer, Monsanto, Dow and DuPont are meeting these challenges head-on with a commitment to developing the latest technologies that make America’s farms both more efficient and effective. These efforts have filled the gap in public investment to groundbreaking agricultural research and development. According to the USDA Economic Research Service, government investment in agricultural R&D dropped to just 30 percent of total agricultural R&D funding since 2013.

Today, the private sector is responsible for many of the innovations that are currently shaping the future of farming in America, and more resources in the private sector means farmers can expect these advances in technology faster. The latest breakthroughs in precision farming techniques are helping farmers target their crop treatments, saving small farms money while also limiting their environmental footprint. For example, John Deere tractors use GPS sensors so that farmers don’t cover the same area twice, which can reduce their fuel input by up to 40 percent.

More permanent partnerships, such as the potential merger between Bayer and Monsanto, will ensure that leading ag companies are able to invest additional resources to bring advanced solutions to farmers. Farmers will be able to spend less time and resources on daily challenges, enabling them to meet the international demand for Iowa’s ag products.

As opponents to mergers pop up as frequently as weeds after a strong rain, we should examine what might possibly be driving their motivation. Rather than truly believing that these mergers harm consumers, many are driven by political motivations. Case in point is the July 21 commentary by Austin Frerick ["To save rural Iowa, oppose Monsanto-Bayer mega-merger"], a little-known former U.S. Treasury economist under the Obama Administration. One can’t help but question Mr. Frerick’s perspective given his support for greater government interference in the marketplace while government investment in R&D has continued to decline.

Cloaking a progressive agenda behind a call for consumers to reject private sector investment by two leading ag companies with a stake in America’s farming future is both disingenuous and harmful. Anyone who has spent any real time in a farmer’s field knows that what agriculture really needs is to attract, not reject, more investment in innovative agricultural technologies.

What critics fail to highlight is that the Bayer-Monsanto merger is the perfect example of bringing together two companies that operate in largely complementary fields to develop new tools and products with more capital. In fact, Bayer focuses mostly on crop protection, while Monsanto is known for seeds and traits capabilities. Alone, it can take each company more than a decade to create a new product for farmers, but together, the time could shorten significantly.

In an ever-changing free market, it is natural for businesses to seek to maintain a competitive advantage over their rivals by expanding their offerings to the consumers they serve. Bayer-Monsanto’s focus on finding the next generation of farming technology will spur their competitors to do the same to keep up.

Farmers are constantly battling uncertainty in their line of business and don’t have time for political posturing. The benefits from greater private sector investment in innovation from these upcoming mergers are clear and demonstrable and are necessary for the future of American farming.

#### Innovation is driving down environmental damage from farming BUT is only feasible with concentrated farming

Dr. Jayson Lusk 16, Professor of Agricultural Economics at Oklahoma State University, “Why Industrial Farms Are Good for the Environment”, The New York Times, 9/23/2016, Lexis

There is much to like about small, local farms and their influence on what we eat. But if we are to sustainably deal with problems presented by population growth and climate change, we need to look to the farmers who grow a majority of the country’s food and fiber.

Large farmers — who are responsible for 80 percent of the food sales in the United States, though they make up fewer than 8 percent of all farms, according to 2012 data from the Department of Agriculture — are among the most progressive, technologically savvy growers on the planet. Their technology has helped make them far gentler on the environment than at any time in history. And a new wave of innovation makes them more sustainable still.

A vast majority of the farms are family-owned. Very few, about 3 percent, are run by nonfamily corporations. Large farm owners (about 159,000) number fewer than the residents of a medium-size city like Springfield, Mo. Their wares, from milk, lettuce and beef to soy, are unlikely to be highlighted on the menus of farm-to-table restaurants, but they fill the shelves at your local grocery store.

There are legitimate fears about soil erosion, manure lagoons, animal welfare and nitrogen runoff at large farms — but it’s not just environmental groups that worry. Farmers are also concerned about fertilizer use and soil runoff.

That’s one reason they’re turning to high-tech solutions like precision agriculture. Using location-specific information about soil nutrients, moisture and productivity of the previous year, new tools, known as “variable rate applicators,” can put fertilizer only on those areas of the field that need it (which may reduce nitrogen runoff into waterways).

GPS signals drive many of today’s tractors, and new planters are allowing farmers to distribute seed varieties to diverse spots of a field to produce more food from each unit of land. They also modulate the amount and type of seed on each part of a field — in some places, leaving none at all.

Many food shoppers have difficulty comprehending the scale and complexity facing modern farmers, especially those who compete in a global marketplace. For example, the median lettuce field is managed by a farmer who has 1,373 football fields of that plant to oversee.

For tomatoes, the figure is 620 football fields; for wheat, 688 football fields; for corn, 453 football fields.

How are farmers able to manage growing crops on this daunting scale? Decades ago, they dreamed about tools to make their jobs easier, more efficient and better for the land: soil sensors to measure water content, drones, satellite images, alternative management techniques like low- and no-till farming, efficient irrigation and mechanical harvesters.

Today, that technology is a regular part of operations at large farms. Farmers watch the evolution of crop prices and track thunderstorms on their smartphones. They use livestock waste to create electricity using anaerobic digesters, which convert manure to methane. Drones monitor crop yields, insect infestations and the location and health of cattle. Innovators are moving high-value crops indoors to better control water use and pests.

Before “factory farming” became a pejorative, agricultural scholars of the mid-20th century were calling for farmers to do just that — become more factorylike and businesslike. From that time, farm sizes have risen significantly. It is precisely this large size that is often criticized today in the belief that large farms put profit ahead of soil and animal health.

But increased size has advantages, especially better opportunities to invest in new technologies and to benefit from economies of scale. Buying a $400,000 combine that gives farmers detailed information on the variations in crop yield in different parts of the field would never pay on just five acres of land; at 5,000 acres, it is a different story.

These technologies reduce the use of water and fertilizer and harm to the environment. Modern seed varieties, some of which were brought about by biotechnology, have allowed farmers to convert to low- and no-till cropping systems, and can encourage the adoption of nitrogen-fixing cover crops such as clover or alfalfa to promote soil health.

Herbicide-resistant crops let farmers control weeds without plowing, and the same technology allows growers to kill off cover crops if they interfere with the planting of cash crops. The herbicide-resistant crops have some downsides: They can lead to farmers’ using more herbicide (though the type of herbicide is important, and the new crops have often led to the use of safer, less toxic ones).

But in most cases, it’s a trade-off worth making, because they enable no-till farming methods, which help prevent soil erosion.

These practices are one reason soil erosion has declined more than 40 percent since the 1980s.

Improvements in agricultural technologies and production practices have significantly lowered the use of energy and water, and greenhouse-gas emissions of food production per unit of output over time. United States crop production now is twice what it was in 1970.

That would not be a good change if more land, water, pesticides and labor were being used. But that is not what happened: Agriculture is using nearly half the labor and 16 percent less land than it did in 1970.

Instead, farmers increased production through innovation. Wheat breeders, for example, using traditional techniques assisted by the latest genetic tools and information, have created varieties that resist disease without numerous applications of insecticides and fungicides. Nearly all corn and soybean farmers practice crop rotation, giving soil a chance to recover. Research is moving beyond simple measures of nitrogen and phosphorus content to look at the microbes in the soil.

New industrywide initiatives are focused on quantifying and measuring soil health. The goal is to provide measurements of factors affecting the long-term value of the soil and to identify which practices — organic, conventional or otherwise — will ensure that farmers can responsibly produce plenty of food for our grandchildren.

#### Farming is rapidly becoming sustainable---all environmental metrics are improving

Michael Shellenberger 20, Founder and President of Environmental Progress, Former President of the Breakthrough Institute, Apocalypse Never: Why Environmental Alarmism Hurts Us All, ISBN: 0063001705,9780063001701

As farms become more productive, grasslands, forests, and wildlife are returning. Globally, the rate of reforestation is catching up to a slowing rate of deforestation.19

Humankind’s use of wood has peaked and could soon decline significantly.20 And humankind’s use of land for agriculture is likely near its peak and capable of declining soon.21 All of this is wonderful news for everyone who cares about achieving universal prosperity and environmental protection.

The key is producing more food on less land. While the amount of land used for agriculture has increased by 8 percent since 1961, the amount of food produced has grown by an astonishing 300 percent.22

Though pastureland and cropland expanded 5 and 16 percent, between 1961 and 2017, the maximum extent of total agriculture land occurred in the 1990s, and declined significantly since then, led by a 4.5 percent drop in pastureland since 2000.23 Between 2000 and 2017, the production of beef and cow’s milk increased by 19 and 38 percent, respectively, even as total land used globally for pasture shrank.24

The replacement of farm animals with machines massively reduced land required for food production. By moving from horses and mules to tractors and combine harvesters, the United States slashed the amount of land required to produce animal feed by an area the size of California. That land savings constituted an astonishing one-quarter of total U.S. land used for agriculture.25

Today, hundreds of millions of horses, cattle, oxen, and other animals are still being used as draft animals for farming in Asia, Africa, and Latin America. Not having to grow food to feed them could free up significant amounts of land for endangered species, just as it did in Europe and North America.

As technology becomes more available, crop yields will continue to rise, even under higher temperatures. Modernized agricultural techniques and inputs could increase rice, wheat, and corn yields five-fold in sub-Saharan Africa, India, and developing nations.26 Experts say sub-Saharan African farms can increase yields by nearly 100 percent by 2050 simply through access to fertilizer, irrigation, and farm machinery.27

If every nation raised its agricultural productivity to the levels of its most successful farmers, global food yields would rise as much as 70 percent.28 If every nation increased the number of crops per year to its full potential, food crop yields could rise another 50 percent.29

Things are headed in the right direction regarding other environmental measures. Water pollution is declining in relative terms, per unit of production, and in absolute terms in some nations. The use of water per unit of agricultural production has been declining as farmers have become more precise in irrigation methods.

High-yield farming produces far less nitrogen pollution run-off than lowyield farming. While rich nations produce 70 percent higher yields than poor nations, they use just 54 percent more nitrogen.30 Nations get better at using nitrogen fertilizer over time. Since the early 1960s, the Netherlands has doubled its yields while using the same amount of fertilizer.31

High-yield farming is also better for soils. Eighty percent of all degraded soils are in poor and developing nations of Asia, Latin America, and Africa. The rate of soil loss is twice as high in developing nations as in developed ones. Thanks to the use of fertilizer, wealthy European nations and the United States have adopted soil conservation and no-till methods, which prevent erosion. In the United States, soil erosion declined 40 percent in just fifteen years, between 1982 and 1997, while yields rose.32

#### It solves food and the environment

**Nordhaus and Blaustein-Rejto 21** , Ted Nordhaus is a leading global thinker on energy, environment, climate, human development, and politics. He is the founder and executive director of the Breakthrough Institute and a co-author of An Ecomodernist Manifesto. Dan Blaustein-Rejto is the director of food and agriculture at the Breakthrough Institute, where he analyzes the economics and potential of sustainable agriculture policies and practices. He has conducted research with the Environmental Defense Fund, International Center for Tropical Agriculture, and Farmers Market Coalition. (Ted and Dan, 4/18/2021, “Big Agriculture Is Best,” *Foreign Policy*, <https://foreignpolicy.com/2021/04/18/big-agriculture-is-best/> Date Accessed: 5/23/2021)

Debates about the social and environmental impacts of America’s food system cannot be disentangled from the basic reality that in a modern industrialized society, most people will live in cities and suburbs and will not work in agriculture. As a result, most food will need to be produced by large farms, with little labor, far away from the people who will consume it.

Many sustainable agriculture advocates tout the [recent growth](https://www.fooddive.com/news/organic-produce-sales-growth-tops-14-in-2020/593702/#:~:text=Sales%20of%20organic%20produce%20rose,conventional%20produce%20sales%20rose%2010.7%25.) of organic agriculture as proof that an alternative food system is possible. But growing market share vastly overstates how much food is actually produced organically. In reality, organic production accounts for little more than [1 percent](https://www.ers.usda.gov/data-products/organic-production/) of total U.S. agricultural land use. Meanwhile, only a bit more than [5 percent](https://www.agweek.com/business/agriculture/4622665-us-organic-market-tops-50-billion) of food sales come from organic producers, mostly because organic sales are overwhelmingly concentrated in high-value sectors of the market, namely produce and dairy, and fetch a premium from well-heeled consumers.

Moreover, organic farms, large and small, don’t actually outperform large conventional farms by many important environmental measures. Scale, technology, and productivity make good environmental sense and economic sense. Because organic farming requires more land for every calorie or pound produced, a [large-scale shift](https://www.technologyreview.com/2019/10/22/132497/sorryorganic-farming-is-actually-worse-for-climate-change/) to organic farming would entail converting more forest and other land to farming, resulting in greater habitat loss and more greenhouse gas emissions. And while organic farming doesn’t use synthetic pesticides or fertilizers, it often results in greater nitrogen pollution because manure is a highly inefficient way to deliver nutrients to crops.

Another benefit of large-scale U.S. farms is that because they are so efficient, economically and environmentally, they are also able to produce vastly more food than Americans can consume, making the country the world’s largest agricultural exporter as well.

That benefits the U.S. economy, of course, but it also comes with an environmental benefit for the world. In the contemporary environmental imagination, highly productive, globally traded agriculture is a bad thing—poisoning the land at home and undermining food sovereignty abroad. But in reality, a pound of grain or beef exported from the United States almost always displaces a pound that would have been produced with more land and greenhouse gas emissions somewhere else.

#### AND it turns disease.

Alex Smith 20, Food and Agriculture Analyst at the Breakthrough Institute, MA/MSc in International and World History from Columbia University and the London School of Economics and Political Science, “To Combat Pandemics, Intensify Agriculture”, The Breakthrough Institute, 4/13/2020, https://thebreakthrough.org/issues/food/zoonosis

There is broad agreement in the epidemiological and virological studies of zoonoses that the most important factor in the development of new zoonotic diseases is land-use change. The development of wild lands, whether caused by agricultural extensification, mining, or other factors, simultaneously shrinks the habitat of wildlife and brings that wildlife in close proximity to human settlements. The combination of shrinking habitats, human-wildlife interactions, and food insecurity is a recipe for zoonosis. In West Africa, these three factors combined were responsible for HIV/AIDS and the slew of recent Ebola outbreaks.

Even when food insecurity and the consumption of wildlife are taken out of the equation, land-use change is a powerful driver of zoonotic disease, and has resulted in outbreaks of zoonotic diseases like malaria, yellow fever, dengue fever, Nipah virus, West Nile virus, Zika virus, and Lyme disease. Often, these diseases are transmitted from animals to humans through an intermediary, sometimes an insect (mosquitoes or ticks) and sometimes through livestock that live too close to wildlife populations, as was the case with Nipah.

Because the biggest driver of land-use change is agriculture, “intensive” high-yield agriculture often takes the blame, but the alternative — extensive, low-yield farming — would be worse. To prevent further pandemics, we must do as much as we can to stop land-use change while improving food security. We must, in other words, improve agricultural yields, allowing us to grow more food on less land. So, contrary to what many have asserted, a vital lever for limiting land-use change and providing cheap food for all is not to abandon intensive agriculture, but to intensify it further, especially in the developing world where food insecurity is greatest and where growing populations means rising food demand.

It is thanks to rising yields that farmers, globally, produce about three times the amount of crops while only using 13% more land than in 1950. For example, if yields from cereal production hadn’t increased since 1961, the global agricultural footprint would be 24% larger than it is today — increasing from roughly 50% at current levels to 62% of total habitable land — and would likely have resulted in even deadlier zoonotic outbreaks.

### 1NC — AT: Tam

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### 1NC — AT: Pollution / Runoff

#### Pesticide use is plummeting

Alison McGrew 20, Writer for Illinois Farm Families, “3 Myths About Sustainable Agriculture”, March 2020, https://www.watchusgrow.org/2020/03/02/3-myths-about-sustainable-agriculture/

Myth #3: Farmers apply too many pesticides on their fields, which impacts water quality.

Fact: Today’s farmers use fewer pesticides than generations past, thanks to technology advancements:

* Smarter crop protection tools – today’s chemicals are precise, effective and leave virtually no residue on the soil, water or crop.
* Better with biotech – some GMO crops have been genetically engineered to fight off pests, so farmers don’t have to use as many chemicals.
* More accuracy – instead of spraying entire fields for weeds and pests, farmers can use equipment and machinery with variable rate technology to spray precisely where needed.

As mindful as we are about what’s happening in our fields, we also care what happens around them. It’s why many farmers choose to use cover crops, reduce tillage and plant vegetation around nearby bodies of water – all to keep the soil healthy and where it belongs.

#### BUT runoff is inevitable, even with fully optimized agriculture

Eileen McLellan 15, Senior Scientist in the Ecosystems Program for Environmental Defense Fund, 10/23/2015, “Commentary: Fertilizer Runoff Is Just One Piece Of The Dead Zone Puzzle.” http://blogs.edf.org/growingreturns/2015/10/21/fertilizer-runoff-is-just-one-piece-of-the-dead-zone-puzzle/

It’s true that fertilizer runoff, sewage, and other pollutants from the Corn Belt have significantly boosted dead zones in the Gulf of Mexico. That’s because up to half of the fertilizer applied isn’t absorbed by crops, and in order to grow more food we’re using 20 times more fertilizer in the Corn Belt today than in the 1950s.

But even if we optimize fertilizer use on all cropland in the Upper Mississippi and Ohio River Basins, **nutrients will still be lost to rivers and streams and carried into the Gulf of Mexico**. **Some of this loss is** inevitable **given factors like** unpredictable weather, but my colleagues and **I set out to quantify other reasons** for why the Corn Belt exports so much nitrogen.

We discovered that **an increase in fertilizer inputs is** only one part **of the problem**. **Three other** distinct but interconnected **factors also contribute to water pollution and the Gulf dead zone**: the **loss of perennial cover**, the construction of **artificial drainage systems**, and the **loss of wetlands**.

In our latest paper in the Journal of the American Water Resources Association, we examine these factors in detail and explain how this new knowledge can help develop solutions.

1. Loss of perennials

In the past century, **as** Midwestern **grasslands and prairies were converted to farmland** and crop rotations were simplified to maximize yield and profit, **the amount of perennial crop cover decreased** significantly. **Shifting from perennial to annual vegetation reduces evapotranspiration**, **which accelerates the delivery of nitrate** into rivers.

By reintroducing perennial plants such as alfalfa, we could improve soil and water quality across the Corn Belt. And perennials could grow alongside annuals such as corn and soybeans without affecting current yields. Cover crops also have a role to play in reducing the delivery of nitrate to rivers.

2. Artificial drainage systems

The hydrology of row crop landscapes has been further altered by the development of **artificial drainage systems**. While these systems are beneficial to crop production, they **prevent any filtration of nitrogen-rich waters and instead hasten transport into streams.** This is a key factor in the contentious Des Moines Water Works lawsuit – a situation that could become the norm unless we can reduce nutrient runoff.

Improving runoff management and capturing or diverting the nitrogen-rich water would greatly limit its effects on people and animals living downstream.

3. Loss of wetlands

Wetlands are one effective way to filter nitrate-rich water and prevent runoff, but **by 1984, over half of all U.S. wetlands were either drained or filled** in for farmland or development.

Restoring wetlands in strategic positions on just 1 to 3 percent of the region’s cropland will combat nitrogen runoff and help bring the Gulf of Mexico dead zone to a manageable size.

Practical Solutions

We need a comprehensive approach to address high levels of nitrogen in the Corn Belt. **Our study offers solutions that would not drastically alter current farming conditions** or upset the economic system on which modern agriculture depends. For example, we need to tailor different conservation and mitigation efforts by region since each landscape has unique attributes and challenges.

### 1NC — AT: Monocultures

#### Monocultures are stable and sustainable

Tim Durham 20, Associate Professor at Ferrum College, Degree in Plant Medicine, Operator of Deer Run Farm, “Perspective: Why Monocultures are a Deceptively Simple Solution in Agriculture”, Ag Daily, 4/29/2020, https://www.agdaily.com/crops/row-crop-redemption/

It’s a humble, if one-sided goal. But what’s often in the crosshairs of activists is the philosophy of the planting system — the “dreaded” monoculture.

Row crops are a relic, say self-styled pundits in the sustainability debate.

Indian activist Vandana Shiva touts her surreally titled book “Monocultures of the Mind,” defying the prevailing mindset and conformity of row crops.

In the closing segment of the BBC’s acclaimed Reith Lecture Series, Prince Charles agreed, proposing that we work “with the grain of nature” and follow the “genius of nature’s clearly defined boundaries.”

After straying too far from nature’s bosom, they say it’s time to square up with polyculture, a mosaic inspired by the rainforest. What does this mean? Grow multiple crops in a shared space. Shun that one-dimensional simplification for a more intricate ecosystem. The selling points are perennial stability, productivity, and built-in checks and balances that keep pests and diseases at bay.

Certainly sounds appealing. In their view, it’s naive to think something so elegantly simple can sustainably provide. If monoculture is a 100 level basket-weaving class for unambitious and shortsighted, polyculture is an all-out doctoral dissertation for the studious and eco-aligned.

Seems like a Rube Goldberg complex though — insufferable complexity just for the sake of it. Ironically, nature’s model is best suited to provide food and fiber — only salvation isn’t the miracle system the Prince is peddling.

Though no farm can ever hope (nor should they want to) faithfully replicate a wild ecosystem, current methods seem to be well grounded. In fact, researcher David Wood thinks Mother Nature would be flattered at the lengths we’ll go to mimic her.

Questioning the theory that cereals (not the milk in a bowl kind, at least not directly!) first arose as weeds on the outskirts of human settlements, Wood found that they exist today as vast monocultures along ancient waterways. Frequent floods would flush these stands with nutrient rich sediment; much in the same way a farmer spreads fertilizer in the field.

For centuries, wild rice was widely harvested as a staple crop from southern Sudan to the Atlantic. Wood suggests that early farmers had a working knowledge of this system and adapted it, realizing the precedents set in nature’s fields.

Even though wet rice has been sustained on the same land for millennia, Miguel Altieri of UC-Berkeley claims that monocultures are inherently unstable because they “provide optimal conditions for the unhampered growth of weeds, insects, and diseases because ecological niches are not filled by other organisms.”

The alternative is to model our ambitions on the rainforest. Hosting perhaps 25 million of the Earth’s 30 million wild species, it remains a hotspot of biodiversity. With limited resources, organisms effectively keep the peace by filling the least intrusive niches and avoiding competition at all costs. Skirmishes for resources are just too costly. Though productivity (in terms of sheer plant biomass) remains high, few of those gains are edible or of economic value to a farmer.

Indeed, the rainforest’s treasure trove of life is largely a last ditch effort to survive.

Suggesting such a model for food production is counterintuitive. Blistering heat robs the soil of nutrients and tilth, and yields suffer. In the Amazon, growers are resigned to slash and burn, while U.S. farmers still tend the land that their forefathers cleared centuries before.

They didn’t know it, but early pioneers extended the historical reign of monodominance by selecting the best land, leaving the marginal areas (which host a much broader spectrum of life) as a last resort. This is the polyculture (and often by association, organic) paradox.

It’s also a textbook case in ecology. When resources are plentiful, a few species dominate. Opportunists need not be pests, as Altieri claims. Nobel Laureate Norman Borlaug capitalized on this principle to develop high-yielding wheat strains responsive to fertilizer and other inputs. In the process he saved a billion lives and 12 million square miles of wildlife habitat.

The Green Revolution taught us that the key to averting human misery and wildlife loss is properly pairing land with practice. We can be intentional by conscripting the “best” land (which tends to trend monodominant anyway), and spare the rich biodiversity in poor(er) real estate. This land sparing ensures maximum productivity on the smallest footprint, sustaining us and leaving more land for nature.

Far from failing the eco-palatability taste test, the take home message is to embrace a monoculture in both mind and practice — using nature’s forgotten fields as inspiration. Farmers can (and should) still leverage crop rotation and fallowing to keep pests and pathogens from building to intolerable levels. No one is suggesting they grow the same crop year in, year out, in the same space. That’s the definition of insanity — not monoculture.

Turns out the deceptively simple monoculture playbook has been right all along. As an eco-foray in conservation, food security, and social justice, polyculture is a recurring fad that’s doomed to fail.

### 1NC — AT: Phosphorus

#### No peak phosphorous---reserves.

Bailey ’18 (Ronald; science correspondent for Reason magazine; February 16th; “Is Degrowth the Only Way to Save the World?”; <https://reason.com/blog/2018/02/16/is-degrowth-the-only-way-to-save-the-wor>; accessed 7/15/19; MSCOTT)

Are we about to run out of phosphorous to fertilize our crops? Peak phosphorus is not at hand. The U.S. Geological Survey (USGS) reports that at current rates of mining, the world's known reserves will last 266 years. The estimated total resources of phosphate rock would last over 1,140 years. "There are no imminent shortages of phosphate rock," notes the USGS. With respect to the deleterious effects that using phosphorus to fertilize crops might have outside of farm fields, researchers are working on ways to endow crops with traits that enable them to use less while maintaining yields.

### 1NC — AT: Anoxia

#### Species are resilient

Moore 15

(Dr. Patrick, former leader of Greenpeace; Chairman of Ecology, Energy and Prosperity with Canada’s Frontier Centre for Public Policy, Ph.D. in Ecology, University of British Columbia, “Why Coral Reefs and Shellfish Will Not Die From ‘Ocean Acidification’”, http://news.heartland.org/editorial/2015/05/27/why-coral-reefs-and-shellfish-will-not-die-ocean-acidification)

The hypothesis that “ocean acidification” will kill corals and shellfish due to higher levels of carbon dioxide dissolved in the sea is often used to stoke fear in the hearts of nature lovers. Here’s why I don’t believe there is a shred of evidence to support these claims. When the slight global warming that occurred between 1970 and 2000 came to a virtual standstill, the doomsayers adopted “climate change”, which apparently means all extreme weather events are caused by human emissions of CO2. Cold, hot, wet, dry, wind, snow and large hailstones are attributed to humanity’s profligate use of fossil fuels. But the pause in global warming kept on and became embarrassing around 2005. Something dire was needed to prop up the climate disruption narrative. “Ocean acidification” was invented to provide yet another apocalyptic scenario, only this one required no warming or severe weather, just more CO2 in the atmosphere. The story goes that as CO2 increases in the atmosphere the oceans will absorb more of it and this will cause them to become acidic — well, not exactly, but at least to become less basic. This in turn is predicted to dissolve the coral reefs and kill the oysters, clams, mussels and algae that have calcareous shells. It was named “global warming’s evil twin”. Seawater in the open ocean is typically at a pH of 8.0-8.5 on a scale of 0-14, where 0 is the most acidic, 14 is most basic and 7 is neutral. Ocean acidification from increased CO2 is predicted to make the ocean less basic, perhaps to pH 7.5 under so-called worst-case projections. How do I know that increased CO2 will not kill the coral reefs and shellfish? Let me count the ways. First, contrary to popular ­belief, at 400 parts per million (0.04 per cent), CO2 is lower now in the atmosphere than it has been during most of the 550 million years since modern life forms emerged during the Cambrian period. CO2 was about 10 times higher then than it is today. Corals and shellfish evolved early and have obviously managed to survive through eras of much higher CO2 than present levels. This alone should negate the “predictions” of species extinction from CO2 levels nowhere near the historical maximum. Second, due to its high concentration of basic elements such as calcium and magnesium, sea­water has a powerful buffering capacity to prevent large swings in pH due to the addition of CO2.This self-correcting capacity of seawater will ensure the pH will remain well within levels conducive to calcification, the process whereby shells and coral structures are formed. Marine shells are largely made of calcium carbonate, the carbon of which is derived from the CO2 dissolved in the seawater. Third, and most interesting, there are freshwater species of clams and mussels that manage to produce calcareous shells at pH 4-5, well into the acidic range. They are able to do this because a mucous layer on their shell allows them to control the pH near the surface and to make calcification possible beneath the mucous layer. The “ocean acidification” story depends only on a chemical hypothesis whereas biological factors can overcome this and create conditions that allow calcification to continue. This is corroborated by the historical record of millions of years of success in much higher CO2 environments.

### 1NC — AT: Soil

#### Global topsoil restoration is effective now---solves the impact

Joe Fontaine 15, Lecturer in Environmental Science, Murdoch University, Australia, et al, 2/12/15, “Evaluating restoration potential of transferred topsoil,” Applied Vegetation Science, DOI: 10.1111/avsc.12162

As biodiversity conservation becomes ever more important on a global scale, restoration is being used increasingly as a tool to temper ecological impacts of development and land-use change (Hobbs et al. 2011; McCarthy et al. 2012), and simply conserving remaining natural areas is no longer sufficient to meet conservation goals (Grimm et al. 2008; McCarthy et al. 2012). While complete restoration of degraded ecosystems rarely is a realistic goal (Hobbs 2007), evidence exists that some taxa, ecological functions and ecosystem services may be returned (Benayas et al. 2009). Therefore, increasing the knowledge and capacity to restore larger proportions of taxa in degraded sites is urgently needed, particularly in biodiversity hotspot regions (Myers et al. 2000).

Ecological restoration is a relatively young science with a rapidly expanding literature investigating restoration capacity (e.g. Ruthrof et al. 2013) as well as debating its efficacy and context for biodiversity conservation (Shackelford et al. 2013). While restoration objectives vary widely, one of the most common is to return native vegetation to degraded sites. Methods for returning vegetation most often involve two distinct approaches; the planting of nursery-raised seedlings, and/or the direct seeding of native species seed mixes. Both of these methods require significant inputs of labour and technical knowledge (i.e. seed collection and storage, germination, propagation, greenhouse use, planting techniques, etc.). A third method, topsoil transfer, the moving of topsoil containing ungerminated but viable soil-stored seeds and other propagules – potentially in high numbers – from newly cleared natural areas to degraded restoration sites, offers the potential to return more species to sites with shorter lag times and lower labour and technical inputs (Koch 2007b). Topsoil transfer has been utilized as a restoration technique in many regions globally, including Spain (Tormo et al. 2007), Japan (Hosogi & Kameyama 2004), Norway (Skrindo & Pedersen 2004), Brazil (Parrotta & Knowles 2001), France (Vécrin & Muller 2003), South Africa (van Rooyen et al. 2004) and Australia (Koch 2007a).

The use of topsoil transfer as a restoration technique has increased in recent years as a tool for post-mining restoration (Parrotta & Knowles 2001; van Rooyen et al. 2004; Koch 2007b), roadside restoration (Skrindo & Pedersen 2004; Tormo et al. 2007), restoring degraded farmland (Vécrin & Muller 2003) and increasing biodiversity in urban areas (Hosogi & Kameyama 2004). While topsoil transfer may offer other benefits (e.g. burying weed seed banks, providing beneficial soil organisms, etc.) the principal motivation has been driven by seed banks (Koch 2007b). Topsoil transfer is particularly appealing in regions characterized by high rates of seed dormancy and high plant diversity (e.g. Mediterranean and other fire-prone regions) where technical knowledge (seed characteristics, propagation methods) may extend to only a small portion of the plant community. Under such circumstances, topsoil transfer has the potential to return many otherwise poorly represented species to restoration sites in an economical manner.

### 1NC — AT: Biodiversity

#### No impact — there is zero tipping point

* Permian-Triassic extinction proves resiliency
* No data on tipping points
* Ecosystems never outright collapse
* 600 models prove no ecosystem collapse

Hance 18 [Jeremy Hance, wildlife blogger for the Guardian and a journalist with Mongabay focusing on forests, indigenous people, climate change and more. He is also the author of Life is Good: Conservation in an Age of Mass Extinction. Could biodiversity destruction lead to a global tipping point? Jan 16, 2018. https://www.theguardian.com/environment/radical-conservation/2018/jan/16/biodiversity-extinction-tipping-point-planetary-boundary]

Just over 250 million years ago, the planet suffered what may be described as its greatest holocaust: ninety-six percent of marine genera (plural of genus) and seventy percent of land vertebrate vanished for good. Even insects suffered a mass extinction – the only time before or since. Entire classes of animals – like trilobites – went out like a match in the wind.

But what’s arguably most fascinating about this event – known as the Permian-Triassic extinction or more poetically, the Great Dying – is the fact that anything survived at all. Life, it seems, is so ridiculously adaptable that not only did thousands of species make it through whatever killed off nearly everything (no one knows for certain though theories abound) but, somehow, after millions of years life even recovered and went on to write new tales.

Even as the Permian-Triassic extinction event shows the fragility of life, it also proves its resilience in the long-term. The lessons of such mass extinctions – five to date and arguably a sixth happening as I write – inform science today. Given that extinction levels are currently 1,000 (some even say 10,000) times the background rate, researchers have long worried about our current destruction of biodiversity – and what that may mean for our future Earth and ourselves.

In 2009, a group of researchers identified nine global boundaries for the planet that if passed could theoretically push the Earth into an uninhabitable state for our species. These global boundaries include climate change, freshwater use, ocean acidification and, yes, biodiversity loss (among others). The group has since updated the terminology surrounding biodiversity, now calling it “biosphere integrity,” but that hasn’t spared it from critique.

A paper last year in Trends in Ecology & Evolution scathingly attacked the idea of any global biodiversity boundary.

“It makes no sense that there exists a tipping point of biodiversity loss beyond which the Earth will collapse,” said co-author and ecologist, José Montoya, with Paul Sabatier Univeristy in France. “There is no rationale for this.”

Montoya wrote the paper along with Ian Donohue, an ecologist at Trinity College in Ireland and Stuart Pimm, one of the world’s leading experts on extinctions, with Duke University in the US.

Montoya, Donohue and Pimm argue that there isn’t evidence of a point at which loss of species leads to ecosystem collapse, globally or even locally. If the planet didn’t collapse after the Permian-Triassic extinction event, it won’t collapse now – though our descendants may well curse us for the damage we’ve done.

Instead, according to the researchers, every loss of species counts. But the damage is gradual and incremental, not a sudden plunge. Ecosystems, according to them, slowly degrade but never fail outright.

“Of more than 600 experiments of biodiversity effects on various functions, none showed a collapse,” Montoya said. “In general, the loss of species has a detrimental effect on ecosystem functions...We progressively lose pollination services, water quality, plant biomass, and many other important functions as we lose species. But we never observe a critical level of biodiversity over which functions collapse.”

## 1NC — Acceleration

### 1NC — AT: AMR

#### No AMR impact — it’s easy to reverse

FASEB 4-28-2010 Federation of American Societies for Experimental Biology, Science Daily “Putting bacterial antibiotic resistance into reverse” <http://www.sciencedaily.com/releases/2010/04/100426072125.htm>

The use of antibiotics to treat bacterial infections causes a continual and vicious cycle in which antibiotic treatment leads to the emergence and spread of resistant strains, forcing the use of additional drugs leading to further multi-drug resistance. But what if it doesn't have to be that way? In a presentation at the American Society for Biochemistry and Molecular Biology's annual meeting, titled "Driving backwards the evolution of antibiotic resistance," Harvard researcher Roy Kishony discussed his recent work showing that some drug combinations can stop or even reverse the normal trend, favoring bacteria that do not develop resistance. "Normally, when clinicians administer a multi-drug regimen, they do so because the drugs act synergistically and speed up bacterial killing," Kishony explains. However, Kishony's laboratory has focused on the opposite phenomenon: antibiotic interactions that have a suppressive effect, namely when the combined inhibitory effect of using the two drugs together is weaker than that of one of the drugs alone. Kishony and his team identified the suppressive interaction in E. coli, discovering that a combination of tetracycline -- which prevents bacteria from making proteins -- and ciprofloxacin -- which prevents them from copying their DNA -- was not as good as slowing down bacterial growth as one of the antibiotics (ciprofloxacin) by itself. Kishony notes that this suppressive interaction can halt bacterial evolution, because any bacteria that develop a resistance to tetracycline will lose its suppressive effect against ciprofloxacin and die off; therefore, in a population the bacteria that remain non-resistant become the dominant strain.

### 1NC — AT: Geoengineering

#### Adjustability averts risks.

Conca ’19 — James, environmental scientist specializing in energy-related research and planetary surface processes, Trustee of the Herbert M. Parker Foundation, Adjunct Professor @ Washington State University, Affiliate Scientist at LANL, consult on strategic planning for the DOE, EPA, and clean energy industry, member of the Sierra Club, Greenpeace, the NRDC, and the Environmental Defense Fund; (September 10, 2019; “Why Solar Geoengineering May Be Our Only Hope To Reverse Global Warming”; *Forbes*; <https://www.forbes.com/sites/jamesconca/2019/09/10/solar-geoengineering-we-better-do-it-or-well-burn/?sh=7efa95718add>; //LFS—SR)

An important point to remember about solar geoengineering is that it inherently self-limiting. You have to keep doing it continuously until we get a handle on emissions. If you stop, the effect goes away in a year or two as the aerosols come out of the atmosphere, just like happens a few years after every huge volcanic eruption.

But this turns out to be a good thing. Solar geoengineering can be adjusted easily and relatively quickly, even reversed, if you don’t like the effects. We wouldn’t have to accept even a few degrees temperature increase, we could keep it the way we want it, even cool off a bit back to where we were 100 years ago.

# 2NC

## T — Subsets

#### Here’s just a short-list of the most notable industries (that certainly have advocates) — insert this list:

Select USA No Date (“INDUSTRIES”, <https://www.selectusa.gov/industries> , date accessed 9/11/21)

The United States is home to the most innovative and productive companies in the world, forming a diverse and competitive group of industry sectors. The U.S. industries highlighted here are exceptionally dynamic and represent key opportunities for global growth and success.

Aerospace

Agribusiness

Automotive

Biopharmaceuticals

Chemicals

Consumer Goods

Energy

Environmental Technology

Financial Services

Logistics and Transportation

Machinery and Equipment

Media and Entertainment

Medical Technology

Professional Services

Retail Trade

Software and IT Services

Textiles

Travel, Tourism, and Hospitality

## Adv — Acceleration

#### Weather extremes and precipitation risks are overstated.

Irvine et. al ’19 — Peter, John A. Paulson School of Engineering and Applied Sciences, Harvard University; Kerry Emanuel, Lorenz Center, Massachusetts Institute of Technology; Jie He, The Program in Atmospheric and Oceanic Sciences, Princeton University, National Oceanic and Atmospheric Administration, Geophysical Fluid Dynamics Laboratory, School of Earth and Atmospheric Sciences, Georgia Institute of Technology; Larry Horowitz, National Oceanic and Atmospheric Administration, Geophysical Fluid Dynamics Laboratory; Gabriel Vecchi, Department of Geosciences and the Princeton Environmental Institute, Princeton University; David Keith, John A. Paulson School of Engineering and Applied Sciences, Harvard University; (March 11, 2019; “Halving warming with idealized solar geoengineering moderates key climate hazards”; *Nature Climate Change*; <https://www.nature.com/articles/s41558-019-0398-8>; //LFS—SR)

Solar geoengineering (SG) has the potential to restore average surface temperatures by increasing planetary albedo1–4, but this could reduce precipitation5–7. Thus, although SG might reduce globally aggregated risks, it may increase climate risks for some regions8–10. Here, using the high-resolution forecast oriented low ocean resolution (HiFLOR) model—which resolves tropical cyclones and has an improved representation of present-day precipitation extremes11,12—alongside 12 models from the Geoengineering Model Intercomparison Project (GeoMIP), we analyse the fraction of locations that see their local climate change exacerbated or moderated by SG. Rather than restoring temperatures, we assume that SG is applied to halve the warming produced by doubling CO2 (half-SG). In HiFLOR, half-SG offsets most of the CO2-induced increase of simulated tropical cyclone intensity. Moreover, neither temperature, water availability, extreme temperature nor extreme precipitation are exacerbated under half-SG when averaged over any Intergovernmental Panel on Climate Change (IPCC) Special Report on Extremes (SREX) region. Indeed, for both extreme precipitation and water availability, less than 0.4% of the ice-free land surface sees exacerbation. Thus, while concerns about the inequality of solar geoengineering impacts are appropriate, the quantitative extent of inequality may be overstated13.

## Adv — Industrial Ag

#### 4 — every other impact via innovation and conservation — productivity is the biggest variable for conservation AND trends solve their internal link

Alex Smith 20, Food and Agriculture Analyst at the Breakthrough Institute, MA/MSc in International and World History from Columbia University and the London School of Economics and Political Science, “To Combat Pandemics, Intensify Agriculture”, The Breakthrough Institute, 4/13/2020, https://thebreakthrough.org/issues/food/zoonosis

Alongside reducing deforestation and land-use change and improving food access and security, sustainably intensifying agriculture across the globe would benefit biodiversity by protecting habitats and keeping them from agricultural development. While monoculture means less biodiversity on farmland, the productivity gains of monocropping — and other intensive agricultural practices — allow for the sparing of far greater land that can be used as habitat for wild flora and fauna. Certainly, agricultural intensification alone is not enough to maximize land-sparing benefits, as improved conservation and land policy is needed to minimize rebound effects. But greater productivity is likely the longest lever for achieving ambitious conservation goals.

The spread of intensive agriculture has come with rising nitrogen run-off, methane emissions, and other environmental impacts. These are real problems, but their solution is the continued improvement of intensive systems. In fact, we are already seeing reductions in many environmental impacts from agriculture in countries where intensive agriculture is prevalent, such as the US.

#### 6 — turns soil — industrial ag is soil preserving---no chance of short-term disaster

James Wong 19, Botanist and Science Writer, Trained at the Royal Botanic Gardens, “The Idea That There Are Only 100 Harvests Left Is Just A Fantasy”, The New Scientist, 5/8/2019, https://www.newscientist.com/article/mg24232291-100-the-idea-that-there-are-only-100-harvests-left-is-just-a-fantasy/

When it comes to science reporting, there are some headlines that are so frequently repeated, so intuitively plausible, so closely aligned to our cultural beliefs, that they can seem like incontrovertible truths.

The general public, and indeed many scientists, may fervently believe that these claims reflect the overwhelming scientific consensus. However, sometimes when you dig a little beyond the surface, the evidence underpinning even the most ubiquitous headlines can seem surprisingly shaky.

Perhaps the best example of such an assertion is that of an impending agricultural Armageddon, caused by decades of irresponsible farming practices that have degraded soils across the planet (or so the press narrative goes).

A quick scan of the headlines reveals that despite the confidence with which these forecasts are proclaimed, the actual timescale to D-Day varies rather widely from story to story. While some report that we have 100 years until the end of our soil’s ability to support farming, citing a University of Sheffield study, others claim that this is a mere 60 years away, referencing a speech at the UN’s Food and Agriculture Organization.

Recently, the UK government’s environment secretary even stated that the UK is as little as 30 years away from an “eradication of soil fertility” because we “drench it in chemicals”. If this is indeed a likely end-game scenario, we should probably determine which of these estimates is most plausible as a matter of urgency: 30, 60 or 100 years. So let’s take a closer look at this claim.

Despite dozens of headlines quoting these predictions, surprisingly only one peer-reviewed paper from a scientific journal is ever cited as evidence to back them up. This 2014 study from the University of Sheffield compared the soil quality of a range of sites in the English city, including agricultural, garden and allotment soils.

Now, before we question whether the results of this single, small study can be extrapolated to represent all of England, let alone the whole UK or even the whole world, let us take a look at their findings: basically, some urban soils in Sheffield are higher in carbon and nitrogen than some nearby agricultural ones. OK, but where is the 100-year statistic? It turns out that nowhere in the study was there any calculation, prediction or even passing reference to the claim. None whatsoever. Perhaps not so much shaky evidence to support this assertion as much as non-existent.

“I asked leading soil scientists if they had ever come across such a prediction in published research. Not a single one had”

Maybe this is the result of a typo and the work is in another research paper? After an 8-hour trawl through the academic journals failed to pull up a single study that even attempted to make this calculation, I contacted six leading soil scientists across the world to ask if they had ever come across such a prediction in either the published literature or their work. Not a single one had.

In fact, the words they used to describe this claim were “bold”, “too Malthusian”, “hardly useful”, “almost insulting” and “I have used this in my soil science lectures to show the students to be wary of headlines!”. Ouch.

Does that mean there aren’t real threats to some agricultural soils around the world? Absolutely not. Indeed, all the scientists I spoke to went to great lengths to point these out, where they exist.

However, they also highlighted how incredibly complex the calculations needed to make such predictions would be, based on myriad factors, only some of which can be predicted with any reliability, with generalisations almost impossible. The boring reality is that while soils in some parts of the world might be in decline, others are not.

Furthermore, while agriculture may be one of the factors driving erosion and nutrient depletion, many modern farming practices such as no-till and synthetic fertiliser applications may actually be helping alleviate (rather than drive) this. In fact, according to many objective measures, modern, evidence-based farming techniques are more sustainable than those of an idealised past. Quite a different picture to that painted by the headlines.

Despite the thirst for simple truths in a complicated world, the researchers I contacted agreed that setting such a figure for an agricultural “end-point” would be nigh on impossible, which may explain why no published studies appear to have been able to do so. But this hasn’t stopped the newspapers. Welcome to 2019!

#### 3. Sustainability is increasing

Alison McGrew 20, Writer for Illinois Farm Families, “3 Myths About Sustainable Agriculture”, March 2020, https://www.watchusgrow.org/2020/03/02/3-myths-about-sustainable-agriculture/

Myth #1: Today’s farms are less sustainable than they used to be.

Fact: Simply put, farmers today are doing more with less. Here are a few examples:

* Compared to 1977, today’s beef farmers produce the same amount of beef with 33% fewer cattle.
* Pig farms now use 75.9% less land than in 1960.
* Over the last 40 years, soybean farmers have nearly doubled how much they grow while using 8% less energy.
* Dairy farmers have reduced greenhouse gas (GHG) emissions by 63% over the past 60 years.
* Corn farmers have increased yields while reducing pesticide and fertilizer use, thanks in part to biotechnology.

Sustainable agriculture may look different on each farm, but the goal is always the same: make the farm better for tomorrow and for future generations while providing a safe, sustainable food supply.

#### 4. Monocultures are efficient AND easily managed---no mass crop failure

Andrew Porterfield 18, MS in Biotechnology from the University of Maryland, BA from the University of Pennsylvania, Owner of Porterfield Marketing and Communications, Writer, Editor and Communications Consultant for Academic Institutions, Companies and Non-Profits in the Life Sciences, “Is monoculture a bad thing? It’s time to revise simplistic ideological narrative”, Genetic Literacy Project, 5/4/2018, https://geneticliteracyproject.org/2018/05/04/is-monoculture-a-bad-thing-its-time-to-revise-simplistic-ideological-narrative/

In a Nebraska field, thousands of acres of winter wheat stretch to the horizon. In California, workers pick strawberries in a field that has grown no other crop for the past eight years. And in Maryland, a single tomato plant grows in a single pot.

What do these have in common?

They could all fall under the phrase “monoculture.” Okay, that last one with the tomato is a bit of a stretch, but it’s an example that underscores how simplistic this discussion often plays out. Many critics of modern agriculture, including anti-GMO activists, point to monoculture as what Michael Pollan calls the “great evil of modern agriculture” and a major reason for the loss of biodiversity in agriculture. They say that biotech crops encourage monocultural farming.

So, what is “monoculture” and is it bad or is the issue more complicated?

Andrew Kniss, a plant scientist and weed expert at the University of Wyoming, is one of many scientists who think that the word doesn’t do the practices justice. On the surface, all monoculture means is that a farmer is growing just one crop in an area. By that definition, all crops are grown in monocultures except for those grown in the tiniest of farms or home gardens.

So, how big an area defines what is “monoculture”? And how many years must a crop be grown in a given field before it’s considered “monoculture”? Does monoculture actually reduce biodiversity?

What does the science say?

Most critics appear to use the term to suggest that something bad happens in single crop areas: blight, crop failure, or loss of biodiversity (in the form of native plants, pollinating insects, or microorganisms).

The Union of Concerned Scientists, under the leadership of its prior agricultural sciences director Doug Gurian-Sherman—who left UCS two years ago and now lobbies against crop biotechnology for the Center of Food Safety [read GLP profile of Gurian-Sherman here]—has argued in a post entitled “Expanding Monoculture: 8 Ways Monsanto Falls at Sustainable Agriculture”, that monoculture reduces diversity and leads to a host of other problems.

Monsanto’s emphasis on limited varieties of a few commodity crops contributes to reduced biodiversity and, as a consequence, to increased pesticide use and fertilizer pollution. Large-acreage field crops—corn, cotton, soybeans, canola, and now alfalfa—make up the bulk of Monsanto’s products, in part because of the high cost of developing engineered traits. And the approach to agriculture that this product line encourages—monoculture, the production of only one crop in a field year after year—is not a sustainable one.

The piece is short of an understanding of the basic science of farming and long on ideology, say agricultural experts.

Consider crop rotation. Most organic food supporters point to crop rotations, which are required for organic certification, as an alternative to the ‘dangers’ of monoculture. But that’s a deceptive argument. Most large farms now rotate their crops as well, so rotating in an of itself does not address the question of the impact of monoculture. And just switching between crops in alternate years doesn’t bring the kind of genetic diversity that can prevent the downsides of mechanized farming.

Monoculture, incorporating crop rotation, can also have positive impacts. Just having one crop in the field allows mechanization of agriculture. Mechanized farming allows faster, efficient planting, weeding, and harvesting, which reduces the destruction of habitats–organic and agro-ecological farming has a yield lag averaging 15-45%. Scaled up to meet the growing global demand for food, smaller scare farming would result in clear cutting of forests and dramatically reduce biodiversity, leading to a sharp increase in greenhouse gases. Intensive farming also frees humans to discover other ways to spend our time and make a living.

Kniss also has made the point that a focus on genetic biodiversity in farming can help reduce the problems of monoculture while preserving its benefits. Examples such as the Irish Potato Famine shows what can happen when farmers depend not only on just one crop but on a crop that is genetically very, very narrow; they are vulnerable to disease. Planting genetically diverse potatoes (or any other crop) can help protect against the potentially negative impact of monoculture. And newly developed genetically modified crops, such as the Simplot Innate potato, have been specifically engineered to protect against the genetically narrowly focused potato blight. Other conventional and organically-grown potatoes are still vulnerable to the blight.

# 1NR

## DA — FTC Tradeoff

#### FTC has sufficient resources now to fight fraud. But they are stretched to capacity.

Soto et al. 21, American attorney and Democratic politician from Kissimmee, Florida, who is the U.S. Representative for Florida's 9th district; Lina Khan is Chair at the FTC; Noah Joshua Phillips is Commissioner at the FTC; Rohit Chopra is Commissioner at the FTC; Christine S. Wilson is Commissioner at the FTC, (Darren, “Transforming the FTC: Legislation to Modernize Consumer Protection,” Committee on Energy and Commerce, 6/28/21, <https://energycommerce.house.gov/committee-activity/hearings/hearing-on-transforming-the-ftc-legislation-to-modernize-consumer>)

Noah Joshua Phillips (5:06:17): Thank you, Congressman, I'd just start with the fact that when I began, our budget was about 309 million, I think, something like that, and the latest congressional budget justification has us at 389. So there's been a substantial increase in the ask, including some funding from Congress. So I think it's important to track how those resources are used. But I do think we can do more with more. That's, that's certainly a true thing. But I think it's important to take care in how we spend what we have.

Darren Soto (5:06:46): Thank you. Commissioner Chopra.

Rohit Chopra (5:06:48): Sir, I think - I know every agency says that they need more resources. But just looking at the data, we are stretched completely to capacity and the rubber band is snapping. And if we need to effectively enforce the law, we need the resources. There are so many laws that Congress has recently passed, whether it's relates to opioids or so many other topics, that the FTC has not brought a single law enforcement action on. That's not just resources. That's also Commissioner accountability. But resources will certainly help.

Darren Soto (5:07:25): Commissioner Slaughter.

Christine Williams (5:07:30): Commissioner Slaughter had to leave, but Commissioner Wilson is here. And I would say that our hard working staff have been even harder working during the last 18 months. They are teleworking but they are working incredibly hard to stay on top of the increase in mergers as well as the increase in COVID scams. And I agree with Commissioner Phillips, it's important to understand how we are spending additional appropriations. But I also know that there are many different areas of the economy where Congress has expressed interest in our being very active and aggressive. And it is difficult to do that unless we have the appropriate resources to do that.

#### Under the radar priorities are most likely to get cut during resource triage

McCabe 18, covers technology policy from The Times' Washington bureau, formerly of Axios (David, “Mergers are spiking, but antitrust cop funding isn't,” Axios, <https://www.axios.com/antitrust-doj-ftc-funding-2f69ed8c-b486-4a08-ab57-d3535ae43b52.html>)

The number of corporate mergers has jumped in recent years, but funding has stagnated for the federal agencies that are supposed to make sure the deals won’t harm consumers. Why it matters: A wave of mega-mergers touching many facets of daily life, from T-Mobile’s merger with Sprint to CVS’s purchase of Aetna, will test the Justice Department's and Federal Trade Commission’s ability to examine smaller or more novel cases, antitrust experts say. What they’re saying: “You have finite resources in terms of people power, so if you are spending all of your time litigating big mergers … there might be some investigations where decisions might have to be made about which investigations you can pursue,” said Caroline Holland, who was a senior staffer in DOJ’s Antitrust Division under President Obama and is now a Mozilla fellow. What's happening: More mergers are underway now than at any point since the recession. The total number of transactions reported to the federal government in fiscal year 2017, and not including cases given expedited approval or where the agencies couldn't legally pursue an investigation, is 82% higher than the number reported in 2010 and 55% higher than the number reported in 2012. Funding for antitrust officials who weigh the deals hasn’t kept pace. The funding for the Department of Justice’s antitrust division has fallen 10% since 2010, when adjusted for inflation. That's in line with the broader picture: not adjusting for inflation, the Department's overall budget increased just slightly in 2016 and 2017. Funding for the FTC has fallen 5% since 2010 (adjusted for inflation). An FTC spokesperson declined to comment on funding levels and Antitrust Division officials didn't provide a comment. Driving the news: Merger and acquisition activity is up 36% in the United States compared to the same time last year, according to Thomson Reuters data from April. Several deals under government review have gotten national attention, including Sinclair’s purchase of Tribune's TV stations or T-Mobile’s deal with Sprint, which stands to reduce the number of national wireless providers from four to three. Meanwhile, the Justice Department is awaiting the ruling on its lengthy legal effort to block AT&T’s proposed $85 billion purchase of Time Warner. Yes, but: It’s not the attention-grabbing mega-mergers that advocates worry will get less of a close look thanks to a shortage of funds. Instead, some say budget limitations are likely to matter when officials are deciding which smaller or "borderline" deals to investigate further. “Sometimes there’s nothing there,” said Holland of the agency's early investigations. “Other times, it might be, ‘This is kind of a close call, and we’ve got three or four close calls and we need to pick one of them.’" "It could mean settlements get accepted that otherwise wouldn’t, or deals that should be challenged aren’t," said Michael Kades of the Washington Center for Equitable Growth, an antitrust-enforcement-friendly think tank that has done extensive research on the topic, in an email

#### The plan extends antitrust beyond its institutional capacity---sets the agency up to fail

Sokol 20, University of Florida Research Foundation Professor of Law, University of Florida (Daniel, “Antitrust's "Curse of Bigness" Problem ,” <https://scholarship.law.ufl.edu/cgi/viewcontent.cgi?article=2020&context=facultypub>)

Antitrust works well because it is technocratic in that a singular (but flexible within its economics) goal is administrable institutionally. To introduce the world of political imperfections into a technical process that examines markets would create further distortions affecting consumers.152 Antitrust does well dealing with antitrust problems. To the extent that there are other related problems, the right answer is not to create an antitrust that lacks democratic accountability (because antitrust becomes regulation via the backdoor) and exceeds its mandate of the past forty years. Rather, the better solution is to identify the underlying problem and solve it with more effective tools. If the problem is one of redistribution, tax is a better choice than antitrust.153 If the problem is one of privacy, strengthen privacy laws. 154 If the problem is one of financial institutions or sector regulators not doing what they need to do, correct structural problems with sector regulators. Antitrust has increasingly moved out of sector regulation 155 and toward advocacy. 156 The advocacy budget of the antitrust agencies is tiny, and to the extent that the problem is the rules of the game for particular industry sectors, Wu falls short by not suggesting greater competition advocacy. Wu’s concern with big tech companies because they are big (p. 126) is as misplaced now as it was earlier in antitrust history. Antitrust has gone through various moments in which it had reevaluated whether it has the proper tools to combat anticompetitive behavior in technology-related markets.157 It does have such tools and can bring important cases in these markets.158 It was just a decade ago that we were told that Walmart was taking over shopping, that eBay was the largest online marketplace, or that Facebook was the primary way in which users shared information. Today, Uber competes with Lyft, Amazon has eclipsed eBay, Facebook is a legacy service, and younger people use any other set of applications to share information— such as Pinterest, Twitter, or Snapchat. In a world of continuous change, antitrust is what remains constant. It has the tools to police against unlawful exercise of monopoly power and adapts to changes in economic theory and empirics. To ask antitrust to go beyond its institutional capacity sets up antitrust to fail, because Wu’s deeper concern is with how society is structured. That structure can be changed through elections to the presidency and Congress and through changes as to the makeup of the Supreme Court. Antitrust history shows that it is the Supreme Court that changes antitrust law and policy the most because of antitrust’s common law–like nature. 159

#### Antitrust lawsuits are resource-consuming---trades off with other priorities

**Mcgill, 19**, technology reporter for POLITICO Pro, (Margaret Harding , “Why breaking up Facebook won't be easy,” *POLITICO*, <https://www.politico.com/story/2019/05/27/breaking-up-facebook-antittrust-1446087>)

3) Antitrust cases take time and money The Justice Department’s antitrust lawsuit against AT&T, and its unsuccessful battle to break up Microsoft, were yearslong affairs that started under one presidential administration and ended in another. That means whoever wins the White House in 2020 could well be out of office before a potential case against Facebook is decided or settled. The AT&T case began in 1974 and ended in 1982, after which the government spent another two years implementing an agreement that split up the company into eight smaller entities. The government spent another decade in the 1990s and early 2000s waging an antitrust war against Microsoft for anti-competitive behavior, arguing that its operating system and internet browser should be separated. But by the time the court approved a settlement in 2002, requiring changes to the company's business practices but leaving Microsoft intact, the penalties did not have much impact, Verveer said. “Technology will change, business models will change, consumer preferences will change,” he said. “You could end up at the end of a long process with something that frankly doesn't make very much difference because the world has moved on.” That's one reason some Facebook critics, including former DOJ antitrust official Gene Kimmelman, argue that imposing restrictions on how social media companies use data could be a more effective strategy than breaking them up. A lengthy lawsuit against Facebook would also consume a lot of resources at the DOJ, which might have to hire outside attorneys and other experts as it did in the Microsoft case. The expense could even require additional appropriations from Congress, Schwartzman said. “It is a really daunting enterprise,” Schwartzman said. “The likelihood the Justice Department or Federal Trade Commission would be able to undertake such an activity is remote.”

#### **Enforcement against multiple companies magnifies the link.**

Sutner 20, News Director @ TechTarget. (Shaun, 12-15-2020, "Efforts to break up big tech expected to continue under Biden", *SearchCIO*, <https://searchcio.techtarget.com/news/252493702/Efforts-to-break-up-big-tech-expected-to-continue-under-Biden>)

Biden pushed on antitrust

Antitrust activists, though, are optimistic about the prospects of a Biden administration clamping down on big tech -- an outcome they argue is long overdue, with decades of light enforcement of antitrust laws. They are pushing Biden toward aggressive antitrust policy. Thirty-three antitrust, consumer and progressive groups in a letter on Nov. 30 urged Biden to reject the influence of big tech vendors and to exclude big tech executives, lobbyists, lawyers and consultants from his administration. Prominent among the signatories was Public Citizen, the liberal consumer advocacy group that has called for Biden to triple the FTC's annual funding, from $400 million to $1.2 billion. "At the front end we want these investigations to be pressed. There are supposed to be investigations of Amazon and Apple and we believe there are cases to be brought there," said Alex Harman, competition policy advocate at Public Citizen and former chief legal counsel to Sen. Mazie Hirono (D-Hawaii). "It's a lot to bring big antitrust cases against multiple companies, and that requires resources," Harman said. "As a lawyer, I don't want to say 'Biden does this,' but we want results that structurally change these companies. We don't want quick resolutions and quick settlements."