



# WHO SETS THE SCIENCE?

## COMPETING VISIONS FOR FOOD, FARM AND CLIMATE POLICY

Photo by fotokistic / Getty Images.

The turmoil that has marked the last few years of pandemic and war and the consequent shocks to people's lives and livelihoods require new approaches to agriculture that plan for disruptions and build in resilience. These events also underscore the fact that a food system relying on a limited number of crops or chemicals — such as wheat or fertilizers — creates risks around the world, especially given the probability of further disruptions as the climate emergency unfolds.

Unfortunately, several initiatives sponsored by the Biden administration head in the wrong direction, expanding reliance on agriculture systems that increase corporate control, reduce biodiversity and undermine innovative agroecological methods. The U.S. push to create the Agriculture Innovation Mission for Climate (AIM for Climate)<sup>1</sup> and the Sustainable Productivity Growth Coalition (SPG)<sup>2</sup> reflect a business-as-usual approach to agriculture, defined by a corporate-friendly focus on “sound science” and export ambitions.

Those initiatives, announced to much fanfare at last year's climate Conference of the Parties (COP), are really the latest iteration of a long string of proposals around so-called climate-smart agriculture. That positive sounding, but vague term often includes practices like genetically engineered seeds and more precise use of synthetic fertilizers and pesticides on a limited set of crops.<sup>3</sup> It serves to lock in sales of corporate-controlled and relatively rigid technology packages, all framed as climate solutions. Climate-smart

agriculture often includes nods to agroecological practices and organic agriculture as just some of many “tools in the toolbox.”

The term climate-smart agriculture has been around since at least 2009<sup>4</sup> and has spurred organized push-back from farmers and other civil society groups who insist on more comprehensive agroecological approaches that prioritize farmers' voices, knowledge and rights. During the Obama administration, Agriculture Secretary Vilsack led the U.S. effort for the Global Alliance for Climate Smart Agriculture. Recent U.S. Department of Agriculture (USDA) funding for climate-smart agriculture and initiatives to link them to carbon markets reinforce that trend in the U.S.<sup>5</sup> AIM for Climate and the Sustainable Productivity Growth coalition are the latest iterations of the effort to rebrand that tired concept internationally.

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### AIM for Climate:

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The U.S. and United Arab Emirates formally launched AIM for Climate at COP26, in Glasgow in November 2021. The platform is built around a common goal to “increase and accelerate agriculture and food systems innovation in support of climate action.”<sup>6</sup> It sets out to exchange information in webinars and other public events, increase investment to \$8 billion by the U.N. Climate Change Conference of Parties in November 2022 (COP 27), largely through public-private partnerships, and facilitate “innovation sprints” around key topics. Innovation is of course imperative to climate solutions in agriculture, but the definition of the



problems and who participates in decisions is also critical to the eventual shape of future food and agriculture systems. Creating a key for a new standardized GMO seed and fertilizer package, for example, likely won't fit the lock of diverse microclimates and nutritional needs for community agriculture. However, it would fit the expansion of industrial scale feed production nicely.

AIM for Climate began with a series of public webinars geared around four focal areas: methane reduction; emerging technologies; smallholder farmers in low- and middle-income countries; and agroecological research. Methane is a potent greenhouse gas, generated in large part from industrial animal production. The webinar emphasized projects such as the FAO's Greener Cattle Initiative,<sup>7</sup> which includes corporations such as JBS, Nestle and ADM and focuses on changes designed for factory farms, such as feed additives to reduce enteric fermentation. More agroecological solutions, such as those based on pastoral systems in Africa, or lessons emerging from Canada's dairy supply management program<sup>8</sup> (which includes limits on production coupled with fair prices for farmers) were not discussed. The point must not only be to reduce the emissions intensity per animal but to improve people's livelihoods (as well as animal welfare) and lower total emissions within a sustainable food system.

A later session on agroecology<sup>9</sup> included the results of new research. Dr. Sieglinde Snapp, from CGIAR's International Maize and Wheat Improvement Center, presented the results of a meta study, which found that agroecology supports climate adaptation, especially when focused on farm diversification (even while noting that globally farms are becoming more simplified rather than more diverse). The researchers found modest evidence of impacts on mitigation but noted that these issues are mostly understudied. Dr. Snapp underscored the importance of support for adaptive capacity, as well as co-creation and sharing of knowledge. Still, the webinar focused primarily on research on outcomes and supply chain tools, leaving aside the social and cultural dimensions of agroecology that are so central to social movements and food sovereignty.

That kind of omission is a feature of AIM for Climate. Since the launch, 39 countries and the European Commission have joined, including Denmark, Hungary, Ireland, Lithuania, Romania and Sweden. As of

October 12, there were 210 non-governmental partners, including corporations such as Bayer, CropLife, Biotechnology Innovation Organization, IBM, PepsiCo, Syngenta and groups with a strong corporate constituency, such as the International Dairy Federation, International Fertilizer Association, North American Meat Institute, the U.S. Dairy Export Council and the World Economic Forum. Several intergovernmental organizations also participate, including the U.N. Food and Agriculture Organization (FAO) and the Consortium of International Agricultural Research Centers (CGIAR) as well as some U.S. universities focused on agriculture.

Most participating countries, businesses and trade associations are strong proponents of agricultural biotechnology and export development. U.S. Farmers & Ranchers in Action, which includes member chapters from the U.S. Farm Bureau, is one of the few organizations in AIM for Climate claiming to represent farmers. Just two U.S. environmental organizations — the Environmental Defense Fund and The Nature Conservancy — participate in AIM for Climate, as does Compassion in World Farming.

Rhetorically, AIM for Climate seems to follow the pattern set by the 2021 United Nations Food Systems Summit (UNFSS). Instead of promoting agroecology and other transformative solutions, the overwhelming focus was on increasing yields and developing production and technical solutions to increase productivity on existing land. While the corporate-friendly USFSS was open for participation by farmers organizations and other critical civil society groups, it generated concerted opposition from many organizations around the world, as summarized in a statement by a coalition including German development organizations Brot für die Welt and Misereor.<sup>10</sup> Others, including Oxfam, Pesticide Action Network and Michael Fakhri (the U.N. Special Rapporteur on the Right to Food),<sup>11</sup> issued similar critiques of the pro-corporate, non-transparent process and unhelpful outcomes.

Several farm, development and animal welfare organizations also challenged AIM for Climate at its launch. Compassion in World Farming and 19 U.S. environmental organizations sent a letter to USDA in December 2021 criticizing the initiative for failing to support regenerative solutions and indigenous stewardship or reductions in factory farmed meat production.<sup>12</sup> They also called out the barriers

to real participation by those advocating different approaches, adding that, “The initiative only allows participation from governments increasing public investment in agricultural innovation, non-government entities increasing self-financed agricultural R&D, and private entities who already support AIM4C’s objectives.” ActionAid issued a similar critique, stating that, “Industrial agriculture is both dangerously vulnerable to the extreme weather caused by climate change as well as a major culprit in global greenhouse gas emissions. But instead of transitioning away from this model of agriculture, AIM for Climate props it up.”<sup>13</sup> AIM for Climate is planning a “roadshow” at the Egypt UNFCCC Conference of Parties in November 2022.

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### **Sustainable Productivity Growth Coalition**

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There is substantial overlap between AIM for Climate and the SPG coalition. While AIM for Climate is focused on promoting a global narrative and public investment in climate-smart agriculture, the SPG coalition seems to have been created in part to challenge the EU’s approach to agricultural policy. The EU’s Farm to Fork is an ongoing public policy initiative intended to promote a transition to more sustainable agriculture. It includes targets on animal welfare, reduction in pesticide and fertilizer use, and expansion of organic agriculture, among other things.

Responding to complaints from agribusinesses that the Farm to Fork goals could impede their exports, Vilsack announced the formation of the SPG coalition with countries that “feel similarly” to the U.S. Speaking at a G20 agriculture ministers meeting, he added, “We look forward to the day when we have trade agreements that remove unfair barriers to trade and [rein] in the most distorting – and environmentally damaging – kinds of subsidies...For right now, we recognize many countries share our goals on sustainable and climate-smart production. It is critical that we encourage the development of markets for these products and guard against trade barriers that discriminate against particular production practices even when the system is delivering positive outcomes.”<sup>14</sup> Later, reporting on that meeting, he added, “We can’t let our European friends basically dominate this conversation...Whatever system we utilize in getting to this goal should not be used as a barrier to trade.”<sup>15</sup>

Over time the SPG’s focus has broadened to include global issues. It is a member of AIM for Climate, with a strong emphasis on increasing productivity through advanced technologies. In October, SPG sponsored a public event with AIM for Climate to launch the Global Agricultural Productivity report,<sup>16</sup> calling for governments to “Embrace science- and information-based technologies and practices,” cultivate public-private partnerships, enhance global trade and reduce post-harvest losses.

The countries involved in SPG include Australia, Brazil, Canada, Colombia, Dominican Republic, European Union, Georgia, Ghana, Honduras, Israel, Jordan, Liberia, Mauritania, New Zealand, North Macedonia, Paraguay, Philippines, Turkey, United Kingdom, United States and Vietnam. Most of those countries are focused on exporting to the EU or are aligned with similar interests in the U.S. On the other hand, Mexico, which is phasing out the use of glyphosate and GMO corn and cotton (and confronting considerable pressure from the U.S.), is notably absent. The EU suddenly appeared on the list in early May. Many of the same (almost exclusively U.S.) agribusiness corporations and research institutes involved in AIM for Climate participate in the SPG coalition. The only environmental organization listed is World Resources Institute.

### **COMPETING VISIONS: PRECAUTION VERSUS CORPORATE SCIENCE**

The approach promoted in these two initiatives has its roots in the specific way the U.S. government and its allies define science. It plays out not only in new proposals to respond to the climate crisis, but also historically in how nations assess the safety of new technologies or chemicals for human and environmental health, both for goods produced domestically and those traded internationally. These differences exist in many countries, but they are especially clear in U.S. and EU’s long history of tension over the EU’s different and often more stringent standards for food safety and agricultural production. These divergent approaches have resulted in trade disputes at the World Trade Organization (WTO). Even when conflicts were eventually adjudicated at the WTO, they continue to influence transatlantic discussions on trade and agriculture. While the formal trade disputes focus on market access for U.S. goods, they center on some core differences in policy, especially how to assess the safety of imports produced under differing standards.

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## Precautionary Principle

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As established in the Treaty of Lisbon and later codified in EU laws, the precautionary principle<sup>17</sup> empowers policymakers to withhold approval of products when scientific evidence about harm to environmental or human health is uncertain or incomplete. In those instances, decisions are made based on assessments of the potential hazard and the risk of that hazard causing harm. The U.S. policy, in contrast, is weighted much more heavily towards needing to prove a harm before a product is regulated. U.S. agencies allow for provisional commercialization of pesticide products without peer reviewed risk assessments. Once commercialized, the pesticide manufacturers seldom submit full data packets for unconditional authorization.<sup>18</sup>

The EU's reliance on the precautionary principle was at the heart of one of the first trade disputes brought to the WTO. The U.S. and Canada challenged the EU's ban of imports of beef products produced using growth hormones, which they said unfairly limited their exports. That EU ban was enacted on the grounds that there was no scientific certainty regarding whether there might be negative impacts on human health, so regulators took a precautionary approach.<sup>19</sup> Although the WTO dispute panel's ruling in favor of the U.S. and Canada could not compel the EU to rescind the ban, it did allow the U.S. and Canada to continue retaliatory trade sanctions against the EU, as well as to establish a special tariff window for imports of beef produced without growth hormones from the U.S. and other countries.<sup>20</sup> Similar tensions emerged again during the failed negotiations for a Transatlantic Trade and Investment Partnership (TTIP), when there was a public outcry in Europe rejecting chlorine rinsed chicken imports from the U.S. The chlorine chicken fight became emblematic of the starkly different food safety standards on either side of the Atlantic.<sup>21</sup> It is also worth noting that the TTIP talks spurred greater collaboration between U.S. groups promoting precautionary approaches to GMO labeling and local foods programs and restrictions on harmful agricultural chemicals and their counterparts in the EU.

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## U.S. definition of sound science

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Both EU and U.S. regulatory authorities rely on science, but the ways they utilize scientific evidence in the determination of standards differs. While the U.S. uses a precautionary approach for pharmaceuticals and certain food additives, there are big loopholes that

allow many products that are Generally Regarded as Safe (GRAS), or products derived from those designated GRAS, to go to market without serious review.<sup>22</sup> The U.S. Center for Food Safety has sued FDA more than once for allowing companies to apply GRAS designation to novel food additives for which GRAS designation was not intended.<sup>23</sup> In 2016, Consumer Reports estimated that there were about 1,000 food substances with GRAS designation but without any scientific evidence of safety to back the designations.<sup>24</sup>

U.S. regulators allow industry groups to submit as evidence scientific studies that have not been subject to peer review and that are sheltered from public scrutiny as confidential business information (CBI).<sup>25</sup> Steve Suppan at IATP, who has tracked food safety and biotechnology issues for years, notes that,

CBI is supposed to apply to trade secrets, e.g., manufacturing methods or product formulas such as the formula for Coca Cola, that do not meet the legal requirements for receiving a grant of patent. Through the extension of this principle, patented information, such as processes of genetic engineering and GE test data, are granted CBI status. Companies can choose what studies and data they wish to submit to regulators. Invariably, their CBI requests are granted by U.S. regulators. The U.S. ag biotech regulatory framework allows only risk assessment and risk management of the end product, not the process by which the GE product is produced. Proper risk assessment requires an understanding of the process, yet GE processes are usually granted CBI status.

U.S. agribusinesses and government representatives claim that use of the precautionary principle is unscientific. They assert that use of the principle diminishes productivity and restricts the potential to confront potential food shortages arising from climate change. Such statements were especially strident during the Trump administration, but they have been used since the EU first adopted the principle and continue today. Secretary Vilsack has complained that “the EU has chosen one way, [while] we in the United States believe that a market-oriented, incentive-based, voluntary system is effective” at reducing emissions from agriculture.<sup>26</sup> That approach has resulted in rising emissions from U.S. agriculture, even as total emissions have fallen.<sup>27</sup>

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## U.S. dependence on export markets

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U.S. farm policy since at least the 1970s has encouraged farmers to expand production well beyond the needs of the U.S. market and to rely on export markets to absorb excess production. In the last decade, farmers have seen prices grow more volatile, while still failing to cover production costs in many years. The recent sharp food price spike caused by the Russian invasion of Ukraine does not really change the pattern of persistently low commodity prices that has led to recurring cycles of bankruptcy for smaller scale farmers and increasing corporate concentration.<sup>28</sup> It would be hard to overstate the drive to continually open new markets to U.S. farm goods. While the U.S. is not unique in pushing to continually expand export markets, that dependence on continuing to open new markets to absorb overproduction creates enormous problems for rural communities and the environment, even as it works very well for global grain, meat and input companies.

While the Biden administration appears serious about confronting the climate catastrophe, in agriculture, its proposals remain underwhelming. The pattern set by decades of export expansion continues to drive the approach to food and farm policy set out under previous administrations. In 2020, USDA's Economic Research Service published an econometric evaluation of the EU's Farm to Fork strategy, concluding that the reduction in the use of pesticides and fertilizers would cut EU production by 7-12%, increasing prices both within the EU and abroad. The authors admitted that the study "was limited to an analysis of agricultural input reductions under the Strategies and does not consider other important aspects of the EC's proposal, for example, increased land in organic production or reductions of food waste and greenhouse gas emissions... and do not provide any information about the potential benefits and costs to the environment and human health."<sup>29</sup> Claire Bury, from the EC Directorate General for Health and Food Safety in the European Commission, countered that, "We don't think it takes into account everything in the farm support strategy. Specifically, it doesn't take into account any research and innovation technology that can increase capacity. It doesn't cover the whole picture of what's in the farm to fork strategy."<sup>30</sup> Still, the headline in the U.S. was about the risks of Farm to Fork not only for the EU but also for global food security.

While U.S. Trade Representative (USTR) Katherine Tai is pushing for new trade policies that respect labor and environmental standards, the USDA continues

to insist on the elimination of market barriers to U.S. farm goods. During the Trump administration Secretary Vilsack served as head of the U.S. Dairy Export Council, where he advocated vigorously to weaken Canada's dairy supply management program and the EU's approach to Geographic Indications protections for cheeses, especially in third country markets. In both cases, the markets involved are much too small to solve the much bigger problems affecting U.S. dairy production, but the programs they attack represent a very different approach to markets, one that accepts their flaws and calls for active intervention. The Dairy Together Network,<sup>31</sup> which includes family farm groups from across the U.S., is pushing hard for fair prices for a smaller volume of production. Vilsack has also pushed against Mexico's efforts to phase out glyphosate (Roundup) and GMO corn, both of which are central to that country's strategy to shift support away from industrial agriculture to more environmentally and socially sustainable production.

## COMPREHENSIVE ALTERNATIVES: AGROECOLOGY AS SCIENCE, A PRACTICE AND A MOVEMENT

Many of the statements coming from these two initiatives are based on the narrow definition of science used to promote industrial agriculture. Agroecology uses a broader definition of science that includes an ongoing dialogue between scientists and farmers, builds soil health, and increases crop, seed and related biodiversity. As a science, agroecology involves study of the ecology of the entire food system and the application of ecological concepts and principles to the design and management of sustainable food systems. It aims to create beneficial biological interactions and synergies among the components of agroecosystems and minimize synthetic and toxic external inputs, as well as waste production. And, importantly, it is integrally linked to social movements that seek to transform agriculture to build locally relevant, resilient and sustainable food systems that strengthen the economic viability of rural areas based on short marketing chains, equity, and both fair and safe food production.<sup>32</sup>

For example, Mexican farmers have formed partnerships with scientists to work through the best ways to build locally controlled biofactories to produce their own fertilizers and reduce the use of chemical inputs. Writing about that experience, a team of Mexican researchers explain that,

These are moments of mutual learning between the farmer and the technical advisor. It is not the kind of top-down “scientific” directives that come from the big agribusiness companies; it is the renewal of peasant knowledge that interacts with the technicians trained in agroecology. Thus, a new way of farmer and technician interaction emerges in which they guide each other in their walks through the fields. They are part of a transformation in the countryside, as together they are both professionals responsible for collaborating in the construction of food sovereignty from the field, a mission that goes beyond providing food to the population, to ensure that it is healthy and free of agrochemicals that damage the land and the human body.<sup>33</sup>

Those kinds of agroecological approaches, which are multiplying around the world, are integrally linked to the priorities of local populations, working from the ground up to build systems that work in their communities and changing national public policies to make those changes possible.

Agroecology has been at the center of several U.N. processes. Chapter two of the Intergovernmental Panel on Climate Change (IPCC)’s sixth report affirms the multiple benefits of agroecology to “contribute to both climate mitigation and adaptation.”<sup>34</sup> The report details the interconnected benefits of agroecology to strengthen local ecosystems and communities, as well as the need for supportive public policies to enable those changes.<sup>35</sup> Those issues were also the subject of an assessment by the U.N. Committee on World Food Security’s High Level Panel of Experts. The 2019 report, *Agroecological and other Innovative Approaches for Sustainable Agriculture and Food Systems that Enhance Food Security and Nutrition*,<sup>36</sup> was the culmination of a series of debates among governments, U.N. food agencies and civil society groups from around the world.

Rather than doubling down on the failed approaches of the past, the governments and groups involved in AIM for Climate and the Sustainable Productivity Growth Coalition should build on those findings and processes for a more modern, integrative approach to agriculture and food systems.

## Endnotes

1. <https://www.aimforclimate.org/>
2. <https://www.usda.gov/oce/sustainability/spg-coalition>
3. <https://www.ams.usda.gov/rules-regulations/be/bioengineered-foods-list>
4. <https://www.iatp.org/blog/201512/clever-ambiguity-climate-smart-agriculture>
5. <https://www.iatp.org/who-owns-climate-smart-commodity>
6. [https://www.aimforclimate.org/media/q0jddyv4/2022\\_aim4c\\_tor.pdf](https://www.aimforclimate.org/media/q0jddyv4/2022_aim4c_tor.pdf)
7. <https://foundationfar.org/consortia/greener-cattle-initiative/>
8. <https://www.iatp.org/canadian-dairy-supply-management-and-climate>
9. <https://www.aimforclimate.org/media/#aim-for-climate-innovation-sprint-agroecological-research-ideation-webinar>
10. <https://www.globalagriculture.org/whats-new/news/en/34453.html#:~:text=The%20UNFSS%20had%20earned%20criticism,disproportionately%20influenced%20by%20corporate%20actors>
11. <https://www.theguardian.com/global-development/2021/sep/22/un-food-summit-will-be-elitist-and-pro-corporate-says-special-rapporteur>
12. <https://www.ciwf.com/media/7448628/aim-for-climate-letter-to-usda-121021.pdf>
13. <https://www.actionaidusa.org/insight/the-biden-administrations-aim-agricultural-innovation-mission-for-climate-is-way-off-target/>
14. “Vilsack pitches international coalition to counter the EU’s ‘Farm to Fork’ plan,” *Inside Trade*, September 20, 2021. <https://insidetrade.com/trade/vilsack-pitches-international-coalition-counter-eu%E2%80%99s-%E2%80%98farm-fork%E2%80%99-plan>
15. From recording of Vilsack’s remarks at 2021 Ag Outlook Forum in Kansas City, *Agri-Pulse TV*, September 21, 2021. <https://www.agri-pulse.com/media/videos/play/821>
16. <https://globalagriculturalproductivity.org/2022-gap-report/reversing-course/>
17. [https://ec.europa.eu/environment/integration/research/newsalert/pdf/precautionary\\_principle\\_decision\\_making\\_under\\_uncertainty\\_FB18\\_en.pdf](https://ec.europa.eu/environment/integration/research/newsalert/pdf/precautionary_principle_decision_making_under_uncertainty_FB18_en.pdf)
18. See Jose Felix Pinto-Bazurco, BRIEF #4: The Precautionary Principle, International Institute for Sustainable Development, October 2020, for more information on the history of and debates around the precautionary principle. <https://www.iisd.org/system/files/2020-10/still-one-earth-precautionary-principle.pdf>
19. *Ibid.*, p. 6.
20. [https://www.wto.org/english/tratop\\_e/dispu\\_e/cases\\_e/ds26\\_e.htm](https://www.wto.org/english/tratop_e/dispu_e/cases_e/ds26_e.htm)
21. Hans von der Burchard and Jacopo Barigazzi, “Europe’s trade fears: chlorine chicken, secret courts,” *Politico*, June 22, 2015. <https://www.politico.eu/article/eu-ttip-fears/>

22. Sharon Treat, “There’s nothing “mini” about the U.S. plan to unravel Europe’s precautionary principle,” IATP, February 25, 2020. <https://www.iatp.org/blog/202002/theres-nothing-mini-about-us-plan-unravel-europes-precautionary-principle>

23. <https://www.centerforfoodsafety.org/press-releases/6386/center-for-food-safety-endorses-new-bill-that-would-close-fdas-food-safety-loophole>

24. <https://www.consumerreports.org/food-safety/gras-hidden-ingredients-in-your-food/#:~:text=In%20all%2C%20there%20are%20an,continued%20federal%20oversight%20are%20minimal>

25. <https://www.ecfr.gov/current/title-19/chapter-II/subchapter-A/part-201/subpart-A/section-201.6>

26. From a September 20, 2021 speech to the Agricultural Business Council of Kansas City, cited in “Why Is Ag Secretary Vilsack So Afraid of a Plan to Cut Pesticides and Meat?” by Tom Philpott, Mother Jones, September 30, 2021. <https://www.motherjones.com/food/2021/09/vilsack-agriculture-pesticides-eu-farm-to-fork-brazil-rainforest-meat/>

27. <https://www.iatp.org/new-epa-data-confirms-role-factory-farms-rising-agriculture-emissions>

28. See Revisiting Crisis by Design, Three Decades of Failed Farm Policy, IATP, 2020, for more on the history of those policies and their current implications. [https://www.iatp.org/sites/default/files/2020-04/Revisiting\\_Crisis\\_By\\_Design\\_web\\_0.pdf](https://www.iatp.org/sites/default/files/2020-04/Revisiting_Crisis_By_Design_web_0.pdf)

29. Jayson Beckman, Maros Ivanic, Jeremy L. Jelliffe, Felix G. Baquedano, and Sara G. Scott, Economic and Food Security Impacts of Agricultural Input Reduction Under the European Union Green Deal’s Farm to Fork and Biodiversity Strategies, USDA ERS Economic Brief No. 30, November 2020. <https://www.ers.usda.gov/webdocs/publications/99741/eb-30.pdf?v=7958.5>

30. See Chris Clayton, The Battle over EU’s Farm to Fork Strategy, DTN Progressive Farmer, November 14, 2020, for a critique of the report, including responses by EU officials. <https://www.dtnpf.com/agriculture/web/ag/blogs/ag-policy-blog/blog-post/2020/11/14/battle-eus-farm-fork-strategy>

31. <https://disparitytoparity.org/dairy-together-building-a-farmer-led-movement-for-supply-management/>

32. Drawn from <https://www.iatp.org/agroecological-transitions> by Shiney Varghese, which explores the history and questions around agroecology along with case studies.

33. <https://www.iatp.org/food-sovereignty-social-construction-field>

34. [https://www.ipcc.ch/report/ar6/wg2/downloads/report/IPCC\\_AR6\\_WGII\\_FinalDraft\\_Chapter02.pdf](https://www.ipcc.ch/report/ar6/wg2/downloads/report/IPCC_AR6_WGII_FinalDraft_Chapter02.pdf)

35. See “From traditional practice to top climate solution, agroecology gets growing attention” by Anna Lappe for an accessible summary of the report and its implications. Mongabay, April 13, 2022. <https://news.mongabay.com/2022/04/from-traditional-practice-to-top-climate-solution-agroecology-gets-growing-attention/#:~:text=Encompassing%20a%20range%20of%20techniques,biodiversity%20crisis%20and%20food%20insecurity>

36. [https://www.fao.org/fileadmin/user\\_upload/hlpe/hlpe\\_documents/HLPE\\_Reports/HLPE-Report-14\\_EN.pdf](https://www.fao.org/fileadmin/user_upload/hlpe/hlpe_documents/HLPE_Reports/HLPE-Report-14_EN.pdf)