

BEHIND THE CURTAIN OF THE JBS NET ZERO PLEDGE

Photo by Mizzou CAFNR from Flickr.

JBS is the largest meat company in the world. While headquartered in Brazil, it has over 450 facilities and offices in more than 20 countries. The company's latest financial report touts its global capacity to feed a projected 2.8 billion people by 2050.¹ Each day, its global operations process 42,700 head of cattle, 92,600 hogs and 8.7 million birds. For JBS, the future means a 70% increase in protein consumption and escalating profits due to rising incomes around the world. The company's second quarter of 2021 was its biggest ever in terms of sales and net profit.²

The rise of JBS as a global meat powerhouse, driven by investments from the Brazilian National Development Bank, has been rapid over the last 15 years.³ The company produces far more meat than any other agribusiness in the world. Its mammoth production mirrors its climate footprint. A 2018 report by IATP and GRAIN found that JBS was the largest corporate meat and dairy emitter of greenhouse gas (GHG) emissions in the world by a significant amount.⁴ The company's emissions were linked not only to animal production (including associated feed, manure and distribution), but also to deforestation and wetland destruction (particularly in Brazil).

So, in March 2021, when the company promised to reach net zero for its GHG emissions by 2040 — the boldest climate commitment of any major meat company — it raised eyebrows.⁵ The company has made environmental commitments to stop deforestation before, only to backtrack a few years later.⁶ The company's 2040 pledge includes no plan to slow its rapid growth in meat production. In fact, soon after JBS made its climate commitment, the company announced a new \$130 million investment to expand processing capacity (by 300,000 head of cattle per year total) at two of its U.S. beef processing plants.⁷

JBS is not alone in making new promises to reduce its climate footprint. It is but one of hundreds of companies around the world promising to reach “net zero” at some future date, often well after current executives have left office.⁸ Net zero accounting, enshrined in the Paris Climate Agreement,⁹ has led to a slew of recent corporate promises from big meat and dairy companies, but will these pledges result in actual emission reductions that meet the urgency of the climate crisis?

The latest Intergovernmental Panel on Climate Change (IPCC) report issued in August warns that it is “code red” in responding to the climate crisis.¹⁰ We need to take urgent action to reduce emissions dramatically in the next 10 to 20 years to avoid climate catastrophe. The IPCC finds that efforts to reduce the potent GHG methane, a major source of emissions from the factory farm system favored by big meat and dairy



companies like JBS, could have a big impact in protecting the planet. Methane is a short-lived pollutant, staying in the atmosphere less than 12 years, while carbon dioxide can remain in the atmosphere for over 100 years. Sharp reductions in methane pollution now can bring quick benefits and slow the climate crisis as we continue to reduce carbon levels. For agriculture, it requires a dramatic transition away from the factory farm system of production, toward appropriately-scaled agroecological systems – a shift that would ultimately reduce the number of animals raised for food.

By focusing on emissions intensity, instead of overall emissions, the pledge obscures critical information needed to validate any net zero claim.

An examination of the JBS climate pledge exposes the loopholes, accounting tricks and sleight of hand that net zero accounting allows, ultimately aiding companies that hope to continue business (and pollution) as usual while putting the world's climate at risk.

WHAT ARE THE DETAILS OF JBS' NET ZERO COMMITMENT?

In March 2021, JBS pledged to reach net zero by 2040, through emission reductions in their operations and by offsetting all residual emissions.¹¹ The commitment spans the company's operations around the globe (North and South America, the U.K., Australia, Europe and New Zealand), including its Pilgrim's Pride poultry division. The commitment includes its "value chain" from producers to suppliers to customers.

Gilberto Tomazoni, JBS global chief executive officer, announced, "As one of the most diversified global food companies, we have an opportunity to leverage our scale and influence to help lead a sustainable transformation of agricultural markets that empowers producers, suppliers, customers and consumers."¹²

JBS pledged it will provide a time-bound roadmap that offers interim targets consistent with the criteria set forth by the Science Based Targets initiative (a global effort to set common measurement metrics among companies) for a 1.5°C trajectory. The SBTi website indicates that JBS submitted its commitment in June 2021 but has not yet had its targets and plan officially validated and made public by SBTi as of September 2021.¹³ The company has signed onto the U.N. Global Compact's Business Ambition for 1.5°C (a collaboration between the U.N. and companies).¹⁴ JBS also committed to providing annual updates on progress to ensure transparency. And the company will ultimately disclose its financial risks linked to climate change, in line with the Task Force on Climate-related Financial Disclosure initiative (a global effort to set guidelines for companies reporting climate risk).¹⁵ JBS' 2020 filing with the Securities and Exchange Commission did not include detailed information about climate risk, referring only to "climate" as one of several factors effecting commodity and cattle prices.¹⁶ But the company's 2020 submission to the Carbon Disclosure Project does include details on climate risks to feed, pasture, supply chains, reputation and regulatory environments, among others.¹⁷

JBS says the strategies the company will use to reach its 2040 net zero goal include:

- **REDUCE DIRECT EMISSIONS IN ITS PROCESSING FACILITIES:** JBS will reduce its global scope 1 (direct emissions from activities) and scope 2 (emissions related to purchase of energy/fuel) emission intensity by at least 30% by 2030 against base year 2019.

- **USE 100% RENEWABLE ELECTRICITY IN ITS FACILITIES:** JBS will convert to 100% renewable electricity across its global facilities by 2040 (60% by 2030).
- **ELIMINATE DEFORESTATION:** JBS will eliminate illegal Amazon deforestation from its supply chain — including from its secondary suppliers of cattle — by 2025 and illegal deforestation in other Brazilian biomes by 2030. The company will achieve zero deforestation across its global supply chain by 2035.
- **INVEST IN THE FUTURE:** JBS will invest more than \$1 billion by 2030 in incremental capital expenditures in emission reduction projects in the company’s facilities.
- **FOSTER INNOVATION:** JBS will invest \$100 million by 2030 in research, technology and development projects to assist producer efforts to strengthen and scale regenerative farming practices, including carbon sequestration and on-farm emission mitigation technologies. This investment will contribute to reducing scope 3 emissions (from purchased ingredients/products like animal feed or deforestation linked to cattle expansion) across the value chain, in efforts toward net zero.
- **ENSURE ACCOUNTABILITY:** Across the company, performance against environmental goals, including GHG emission reduction targets, will be part of senior executive compensation considerations.

DOES JBS’ NET ZERO PLEDGE HOLD UP?

In our 2018 Emissions Impossible report, we found that JBS was publicly reporting only 3% of the emissions IATP and GRAIN calculated using globally accepted methodology.¹⁸ We wondered whether the new JBS net zero pledge would capture more of their actual emissions. A few things jump out from JBS’ pledge that are typical of many net zero pledges: The lack of specifics, timelines, and details on how the commitments will be verified and how they will be held accountable. Let’s examine some of the primary issues:

FIXING THE BASELINE – One of the real impediments to tracking JBS’ net zero pledge is the lack of a clear baseline of emissions to track progress. The pledge doesn’t clearly state what the baseline year is for the company’s overall emissions.

WHO’S COUNTING? – Like many net zero pledges, it appears the company is doing the number counting on emissions, whether directly reduced, within the supply chain or via offsets. There is no independent third-party audit to ensure any claims about emissions cuts are credible. Third-party credibility is particularly important for a company like JBS (see section below on the company’s dubious track record).

EXCLUDING LIVESTOCK – In the company’s 2020 Sustainability Report, JBS states that it does not track “enteric and manure emissions from our live animal operations” in its climate footprint. If this holds true for the company’s 2040 net zero pledge, JBS has excluded a major source of emissions through livestock and associated manure.¹⁹ IATP reached out to JBS for clarification, but received no response. This omission would be pivotal and positions the company to continue expanding meat production, even as it claims to be on the road to net zero.

ACCOUNTING GAMES WITH EMISSIONS INTENSITY – JBS has made more specific claims about reducing its energy intensity, a way to track per kilowatt of energy required to do some aspect of their business. The problem is if overall production continues to expand, even with improvements in emissions intensity, the company can still see emissions grow. JBS has committed to reduce its energy intensity by 30% by 2030 at its processing facilities. But if the company expands its processing capacity overall, it may actually increase overall emissions. For example, JBS’ 2020 sustainability report claimed it reduced its electricity emissions intensity in its U.S. operations by 20% from 2015, but increased its overall U.S. operations’ electricity emissions from 1.039 trillion kWh to 1.176 trillion kWh during that period.²⁰

Even within the energy intensity metric, the company's energy intensity actually increased by 4% from 2019 to 2020, according to the sustainability report. By focusing on emissions intensity, instead of overall emissions, the pledge obscures critical information needed to validate any net zero claim.

UNENDING GROWTH? – JBS' remarkable growth over the last 15 years has led to our estimate that it is the largest GHG emitter among meat and dairy companies in the world. Nowhere in the company's pledge does it discuss plans to slow growth. In fact, its financial reporting, including its most recent second quarter 2021 report, cite the need to expand to meet the needs of what it views as the growing protein sector due to rising global incomes. It does not discuss alternative ways of raising animals, such as the integration of agroecology in the use of scale-appropriate, well-managed pastures that benefit the environment. It does not discuss a transition away from the polluting concentrated animal feeding operation (CAFO) system, where thousands of animals are packed together, often indoors, producing enormous amounts of manure. The resulting giant manure lagoons exceed what can appropriately be used on the land as fertilizer, often running off and polluting waterways. Instead, JBS looks forward to continued growth of its current extractive system of production that is dependent on factory farming and associated deforestation.²¹

BANKING ON CARBON SINKS – The latest IPCC report on the climate crisis outlines the limits of relying on land and water as carbon sinks to reduce global emissions.²² The IPCC report makes clear that as carbon levels rise in the atmosphere, our ability to sequester carbon diminishes. Increasing climate-related events themselves, whether drought or flooding, impact our ability to use the land as a sink. JBS pledges to invest in unnamed projects to promote regenerative agriculture that will sequester carbon. It also pledges to meet any gaps in its climate pledge through offsets. Missing is any estimate of how much of its 2040 net zero goal depends on using land as a carbon sink. It is critical that companies distinguish between actual emission reductions and increasingly questionable land-based offsets in reaching their climate goals. If the commitment is heavily reliant on land-based offsets, it weakens the integrity of the pledge significantly.

DEFORESTATION CONTINUES – JBS openly admits in its 2040 pledge that it contributes to illegal deforestation as part of its regular, current operations. JBS promises to eliminate illegal deforestation in its supply chain by 2025. The promise has drawn some skepticism. The company made a similar promise in 2009, only to renege on that commitment, reports Greenpeace.²³ Moreover, its practices along with other meat processors continue to drive the Amazon region towards a "tipping point" when the region will become a net-emitter, worsening the climate crisis, rather than serving as a key reservoir for storing carbon.²⁴ The company should halt illegal deforestation immediately. It doesn't need four years. The company's pledge also reveals that it plans to continue to allow its operations to drive deforestation around the world for another 14 years, finally ending in 2035. This is an unacceptable outcome on an unacceptable timeline for the climate crisis.

Additionally, Greenpeace International (GI) points out that the pledge does not mention the intentional use of fire to clear land. A GI investigation linked JBS and other meat companies to purchasing cattle linked to 2020 fires in the Pantanal region of Brazil, the world's largest contiguous wetland.²⁵

DEFINING RENEWABLE ENERGY – JBS pledges to power its facilities around the world with 100% renewable energy by 2040 (60% by 2030). But what does the

Instead of transitioning away from this harmful system, factory farm gas incentivizes the production of more concentrated manure and its water and air pollution.

company count as renewable energy? There has been a major push by meat and dairy companies to categorize methane gas captured from giant manure lagoons as renewable energy. This factory farm gas is highly controversial for several reasons, including research indicating that they are prone to leak methane.²⁶ They are tied to large-scale animal production that results in huge manure lagoons, which have been associated with water pollution,²⁷ air pollution²⁸ and quality of life threats to rural residents.²⁹ Instead of transitioning away from this harmful system, factory farm gas incentivizes the production of more concentrated manure and its water and air pollution. Additionally, factory farm gas is often piped into natural gas pipelines, allowing the natural gas industry to make claims of providing “renewable energy or fuel,” while continuing its own methane emissions.³⁰

JBS claims that 12 of its facilities use manure lagoons to produce factory farm gas to generate energy and features its latest digester at Brooks Lagoon (JBS Canada) in its 2020 sustainability report.³¹ JBS’ climate plan appears reliant on the expansion of its factory farm gas production that it classifies as renewable and counts toward the company’s 100% renewable energy goal.

WHAT IS JBS’ RECORD ON THE ENVIRONMENT AND COMMITMENTS?

JBS has been making environmental-related promises for over a decade. In 2009, the company made its first pledge on a moratorium for buying cattle raised on recently deforested land in Brazil.³² The commitment included a promise for fully transparent monitoring and reporting. That pledge was to eliminate deforestation linked to its Amazon supply chain. It was never fulfilled. Greenpeace reports that JBS has repeatedly been linked to illegal deforestation and operating illegally on protected indigenous land.³³ A 2020 Global Witness report also tied JBS supply chains to illegal deforestation and purchases from ranchers accused of human rights abuses.³⁴ As recent as October 2021, Brazilian federal prosecutors concluded that in 2020 JBS purchased over 300,000 cattle from ranches with “irregularities,” including illegal deforestation in the Amazon region, and that the situation was worsening.³⁵

Along with several other meat companies in Brazil, JBS promised a certification system that stopped purchases linked to slave labor and on protected land. According to Mighty Earth’s soy and cattle deforestation tracker in Brazil, JBS ranks the lowest among meat companies with a score of 1 out of 100.³⁶ The organization estimates that more than half of those deforestation cases were possibly illegal. JBS continues to refuse to disclose its suppliers, so tracking the company’s record on deforestation is painstakingly difficult.

WHAT IS JBS’ RECORD ON VIOLATIONS?

Aside from environmental commitments unmet, JBS also has a remarkable record of flouting the law over the last decade. The JBS compliance program has a motto, “Always do the right thing,” touted in its 2020 annual report.³⁷ But a cursory review of just recent legal entanglements the company has faced raises skepticism about the commitment to that motto — and whether the company will comply with its net zero pledge. It also raises questions about whether all corporate net zero pledges should include a commitment to comply with environmental, labor and competition laws. Here are a few highlights of recent problems at JBS:

- In 2017, the company paid \$3.2 billion related to its role in a major corruption scandal in Brazil, including the bribing of finance officials to obtain government-backed loans.³⁸
- In 2019, the USDA found JBS violated the Packers and Stockyards Act by under-weighting and under-paying Nebraska farmers’ beef carcasses.³⁹
- In 2019, JBS knowingly sold pentobarbital-adulterated beef tallow to pet food makers.⁴⁰

- In 2019, it was revealed that for 60 straight months, a JBS Colorado beef processing plant violated state and federal water discharge rules.⁴¹
- Later in 2020, JBS settled charges with the Security Exchange Commission over Foreign Corrupt Practices Act violations for \$27 million.⁴²
- In 2020, its poultry division Pilgrim’s Pride in Tennessee was fined for three violations involving odor.⁴³
- In 2020, the company was fined multiple times by the Department of Labor⁴⁴ for failing to adequately protect its employees during the pandemic, including at its Colorado plant, Green Bay, Wisconsin plant⁴⁵ and Texas plant.⁴⁶
- In 2020, a Judge in Brazil ordered JBS to pay \$3.6 million fine in connection with a COVID-19 outbreak for not providing adequate worker protections.⁴⁷
- In 2020, six executives of JBS’ poultry division Pilgrim’s Pride were personally indicted on federal price-fixing charges.⁴⁸
- Later in 2020, Pilgrim’s Pride paid a \$110 million fine to settle federal price fixing charges in poultry markets.⁴⁹
- Earlier in 2021, JBS’s Wild Fork Foods settled charges with the U.S. Equal Employment Opportunity Commission over a race discrimination and retaliation case.⁵⁰
- In June 2021, the company settled a wage-fixing case, charging that it had conspired to keep workers’ wages low.⁵¹
- In July 2021, JBS agreed to pay \$12.7 million to settle pork price-fixing charges.⁵²

WHAT LESSONS CAN BE LEARNED FROM JBS’ NET ZERO COMMITMENT, BY COMPANIES AND COUNTRIES?

Article 41 of the Paris Climate Agreement says that countries must reach net zero emissions through reductions in polluting sources combined with the use of carbon sinks (or offsetting emissions) through the sequestration of carbon — whether through forestry or agriculture. As the JBS commitment shows, the murkiness of net zero accounting, particularly when making future projections, has been attractive to many global corporations as a way to reduce climate scrutiny. Increasingly, corporate net zero claims are coming under heavy criticism as nothing more than greenwashing.⁵³

For example, net zero accounting has been embraced by the American Petroleum Institute and other fossil fuel companies.⁵⁴ Earlier this year, Shell Oil made a dramatic net zero by 2050 pledge, despite projecting to expand gas production.⁵⁵ The company plans to offset its production by planting trees and yet-to-be-developed carbon capture technology. Shell has boasted of oil tankers that are “carbon neutral” by purchasing what turned out to be fake forestry-based offsets.⁵⁶ In fact, net zero accounting is so lax, even oil companies sourcing from the high emitting Canadian tar sands have put forth a net zero pledge by 2050 — again, remarkably they do not include any reductions in tar sands oil production.⁵⁷ The claims have become so outrageous, the Australian gas company Santos Ltd is now being sued by environmental groups for deceptive claims at the country’s Federal Court.⁵⁸

Companies are not just using net zero pledges to avoid scrutiny from shareholders and investors, they are starting to use these commitments to raise capital. Earlier this year, JBS issued a Sustainability-Linked Bond, linked to its net zero climate goals. The bond raised many questions from investors given JBS’ history.⁵⁹ But there is no clear penalty if the company doesn’t reach its sustainability goals. It must only demonstrate it made a good faith effort to reach them.

MOVING FROM NET ZERO TO REAL CLIMATE ACTION

The JBS net zero pledge, along with the fossil fuel industry's embrace of net zero accounting, should raise concerns about whether voluntary corporate pledges are a meaningful, or even useful, strategy to meet our global climate goals. The recent proposal by the Netherlands to cut back its livestock numbers by one-third to reduce its ammonia pollution stands in sharp contrast to net zero pledges.⁶⁰ Most governments continue to be reluctant to set strong regulatory limits (with resources for enforcement) on powerful sectors of the economy that are responsible for growing climate emissions. In the case of meat and dairy production, strong action from governments should include:

- Strong and enforceable rules against deforestation, including agriculture-driven deforestation;
- Regulatory limits on factory farm methane emissions, particularly large-scale dairy and hog production that liquifies its manure;⁶¹
- Regulatory limits on fertilizer nitrous oxide emissions, particularly the excess use of nitrogen fertilizer often linked to animal feed production worldwide;⁶²
- Public investments in aiding farmers and rural communities in a transition toward agroecological-based systems of raising animals.

These types of national-level policies could provide real, measurable reductions in emissions that meet the urgency of the climate crisis. As countries and companies ratchet up their climate commitments as part of the Paris Climate Agreement, we urge them to put aside corporate net zero claims and focus on setting strong policies that result in real, actual emissions reductions and climate resilience and that better match the urgency of the climate crisis.

ENDNOTES

1. JBS. First Quarter 2021 Results, Institutional Presentation. Accessed 10/6/2021. <https://api.mziq.com/mzfilemanager/v2/d/043a77e1-0127-4502-bc5b-21427b991b22/71ac5d61-306b-fe12-485e-7079041bb4ae?origin=2>
2. Figueiredo, Nayara; Mano, Ana. "Brazil's JBS Posts Strong Q2 Earnings, Hails Best Quarter in History." Yahoo! Finance. August 11, 2021. <https://finance.yahoo.com/news/1-brazils-jbs-posts-strong-224226804.html>
3. Sharma, Shefali; Schlesinger, Sergio. The Rise of Big Meat: Brazil's Extractive Industry. Institute for Agriculture and Trade Policy, FASE, Heinrich Boll Stiftung. 2017. https://www.iatp.org/sites/default/files/2017-11/2017_11_30_RiseBigMeat_f.pdf
4. Institute for Agriculture and Trade Policy, GRAIN. *Emissions Impossible: How Big Meat and Dairy Are Heating Up the Planet*. 2018. <https://www.iatp.org/sites/default/files/2018-08/Emissions%20impossible%20EN%2012.pdf>
5. JBS. "JBS Makes Global Commitment to Reach Net Zero Greenhouse Gas Emissions By 2040." March 23, 2021. <https://jbsfoodsgroup.com/articles/jbs-makes-global-commitment-to-achieve-net-zero-greenhouse-gas-emissions-by-2040>
6. Estrada, Rodrigo. "Greenpeace Brazil Suspends Negotiations With Cattle Giant JBS." Greenpeace. March 23, 2017. <https://www.greenpeace.org/usa/news/greenpeace-brazil-suspends-negotiations-cattle-giant-jbs/>
7. JBS USA. JBS USA Invests in US Beef Capacity and Permanent Increased Wages. Global Newswire. June 9, 2021. <https://www.globenewswire.com/news-release/2021/06/09/2244633/0/en/JBS-USA-Invests-in-U-S-Beef-Capacity-and-Permanent-Increased-Wages.html>
8. Climate Land Ambition and Rights Alliance (CLARA). Net Zero Files. Accessed 10/6/2021. <https://www.clara.earth/netzero>
9. United Nations Framework Convention on Climate Change. The Paris Climate Agreement. 2015. <https://unfccc.int/process-and-meetings/the-paris-agreement/the-paris-agreement>
10. Intergovernmental Panel on Climate Change (IPCC). *Climate Change 2021: The Physical Science Basis*. 2021. <https://www.ipcc.ch/report/sixth-assessment-report-working-group-i/>

11. JBS. “JBS Makes Global Commitment to Reach Net Zero Greenhouse Gas Emissions By 2040.” March 23, 2021. <https://jbsfoodsgroup.com/articles/jbs-makes-global-commitment-to-achieve-net-zero-greenhouse-gas-emissions-by-2040>
12. JBS. “JBS Makes Global Commitment to Reach Net Zero Greenhouse Gas Emissions By 2040.” March 23, 2021. <https://jbsfoodsgroup.com/articles/jbs-makes-global-commitment-to-achieve-net-zero-greenhouse-gas-emissions-by-2040>
13. Science Based Target Initiative. Companies Taking Action. Accessed 10/6/2021. <https://sciencebasedtargets.org/companies-taking-action#table>
14. UN Global Compact. Business Ambition for 1.5C. Accessed 10/6/2021. <https://www.unglobalcompact.org/take-action/events/climate-action-summit-2019/business-ambition/business-leaders-taking-action>
15. Financial Stability Board, Task Force on Climate Related Financial Disclosure. Recommendations. Accessed 10/6/2021. <https://www.fsb-tcfd.org/recommendations/>
16. JBS. JBS 2020 Management Report and Financial Statements. Filed 3/24/2021. Accessed 10/6/2021. <https://sec.report/otc/financial-report/275113>
17. JBS S.A. Climate Change 2020. Carbon Disclosure Project. Accessed 10/6/2021. https://www.cdp.net/en/formatted_responses/responses?campaign_id=70692136&discloser_id=855989&locale=en&organization_name=JBS+S.A&organization_number=9730&program=Investor&project_year=2020&redirect=https%3A%2F%2Fcdp.credit360.com%2Fsurveys%2F2020%2F6sc15v4h%2F95054&survey_id=68887525
18. Institute for Agriculture and Trade Policy, *GRAIN. Emissions Impossible: How Big Meat and Dairy Are Heating Up the Planet*. 2018. <https://www.iatp.org/sites/default/files/2018-08/Emissions%20impossible%20EN%2012.pdf>
19. JBS. 2020 Sustainability Report, Energy and Emissions Chapter. Accessed 10/6/2021. <https://sustainability.jbsfoodsgroup.com/chapters/environment/energy-emissions/>
20. Ibid.
21. Sharma, Shefali; Schlesinger, Sergio. *The Rise of Big Meat: Brazil's Extractive Industry*. Institute for Agriculture and Trade Policy, FASE, Heinrich Boll Stiftung. 2017. https://www.iatp.org/sites/default/files/2017-11/2017_11_30_RiseBigMeat_f.pdf
22. Intergovernmental Panel on Climate Change (IPCC). *Climate Change 2021: The Physical Science Basis*. 2021. <https://www.ipcc.ch/report/sixth-assessment-report-working-group-i/>
23. Estrada, Rodrigo. “Greenpeace Brazil Suspends Negotiations With Cattle Giant JBS.” Greenpeace. March 23, 2017. <https://www.greenpeace.org/usa/news/greenpeace-brazil-suspends-negotiations-cattle-giant-jbs/>
24. Sharma, Shefali. Climate, Land Use Change and the EU-Mercosur Agreement: Accelerating Tipping Points. Institute for Agriculture and Trade Policy. December 7, 2020. <https://www.iatp.org/documents/climate-land-use-change-and-eu-mercosur-agreement-accelerating-tipping-points>
25. Greenpeace International. Making Mincemeat of the Pantanal. March 3, 2021. <https://www.greenpeace.org/international/publication/46577/pantanal-brazil-fires-jbs-meat-cattle/>
26. Gross, Liza. Can California Reduce Dairy Methane Emissions Equitably. Civil Eats. August 9, 2021. <https://insideclimatenews.org/news/09082021/california-dairy-methane-emissions/>
27. Boehm, Rebecca. Dirty Water, Degraded Soil: The Steep Cost of Farm Pollution and How Iowans Can Fix It Together. Union of Concerned Scientists. January 14, 2021. <https://www.ucsusa.org/resources/dirty-water-degraded-soil>
28. Douglas, Leah. “A Breathtaking Lack of Oversight From Air Emissions From Animal Farms.” The Food and Environment Reporting Network. December 20, 2019. <https://thefern.org/2019/12/a-breathtaking-lack-of-oversight-for-air-emissions-from-animal-farms/>
29. Gross, Liza. Can California Reduce Dairy Methane Emissions Equitably. Civil Eats. August 9, 2021. <https://insideclimatenews.org/news/09082021/california-dairy-methane-emissions/>
30. Evans, Morgan. BP Looks to Build RNG Portfolio in Iowa and California. Natural Gas Intel. August 18, 2021. <https://www.naturalgasintel.com/bp-looks-to-build-u-s-rng-portfolio-in-iowa-and-california/>
31. JBS. 2020 Sustainability Report, Energy and Emissions Chapter. Accessed 10/6/2021. <https://sustainability.jbsfoodsgroup.com/chapters/environment/energy-emissions/>
32. <https://news.mongabay.com/2009/10/brazilian-beef-giants-agree-to-moratorium-on-amazon-deforestation/>
33. Greenpeace International. *How JBS is Still Slaughtering the Amazon*. August 2020. https://www.greenpeace.org/static/planet4-international-stateless/2020/08/60e2cd00-greenpeace_stillslaughtering_pages-1.pdf
34. Global Witness. *Beef, Banks and the Brazilian Amazon*. December 2020. <https://www.globalwitness.org/en/campaigns/forests/beef-banks-and-brazilian-amazon/>

35. Mano, Ana. "Brazil's JBS Bought 301,000 Cattle From 'Irregular' Farms in Amazon, Audit Finds." Reuters in Alberta Farmer Express. October 7, 2021. <https://www.albertafarmexpress.ca/daily/brazils-jbs-bought-301000-cattle-from-irregular-farms-in-amazon-audit-finds/>
36. Mighty Earth. Soy and Cattle Deforestation Tracker. Accessed October 8, 2021. <https://www.mightyearth.org/soy-and-cattle-tracker/>
37. JBS. JBS 2020 Management Report and Financial Statements. Filed 3/24/2021. Accessed 10/6/2021. <https://sec.report/otc/financial-report/275113>
38. Brito, Ricardo. Brazil's J&F Agrees to Pay Record \$3.2 Billion Fine in Leniency Deal. Reuters. May 31, 2017. <https://www.reuters.com/article/us-brazil-corruption-jbs-idUSKBN18R1HE>
39. Kelloway, Claire. JBS Shortchanges Nebraska Farmers, Violating the Packers and Stockyards Act. Food and Power. January 3, 2019. <https://www.foodandpower.net/latest/2019/01/03/jbs-shortchanges-nebraska-ranchers-violating-the-packers-stockyards-act>
40. Entis, Phyllis. JBS Knowingly Distributed Products Containing Euthanasia Drug. Food Safety News. May 1, 2019. <https://www.foodsafetynews.com/2019/05/jbs-knowingly-distributed-pentobarbital-adulterated-products-to-customers/>
41. Kovaleski, Tony. Everyone in Colorado Should be Concerned About that Water: Meatpacking Plant Broke the Law for Five Years. The Denver Channel (ABC). November 19, 2019. <https://www.thedenverchannel.com/news/investigations/everyone-in-colorado-should-be-concerned-about-that-water-meat-packing-plant-broke-law-for-5-yrs>
42. U.S. Security and Exchange Commission. SEC Charges Brazilian Meat Producers with FCPA Violations. October 14, 2020. <https://www.sec.gov/news/press-release/2020-254#.X4hdioiq7FY.twitter>
43. Pare, Mike. Pilgrim's Pride Poultry Plants in Chattanooga Hit With Civil Penalties for Odor. Chattanooga Times Free Press. February 15, 2020. <https://www.timesfreepress.com/news/business/aroundregion/story/2020/feb/15/pilgrims-pride-plants-hit-civil-penalties-od/515775/#.XkqJdadeGY4.twitter>
44. Department of Labor. U.S. Department of Labor Cites JBS Foods Inc. For Failure to Protect Employees From Exposure to the Coronavirus. 9/11/2020. <https://www.dol.gov/newsroom/releases/osh/osh20200911-1>
45. Department of Labor. U.S. Department of Labor's OSHA Announces \$1,603,544 in Coronavirus Violations. 10/23/2020. <https://www.dol.gov/newsroom/releases/osh/osh20201023>
46. Department of Labor. U.S. Department of Labor's OSHA Announces \$2,025,431 in Coronavirus Violations. 10/30/2020. <https://www.dol.gov/newsroom/releases/osh/osh20201030>
47. Mano, Ana. JBS Ordered to Pay \$3.6 million After Brazil Meat Plant's Covid Outbreak. Reuters. March 19, 2021. <https://www.reuters.com/article/us-jbs-covid-payment-idUSKBN2BB1XB>
48. Avery, Greg. "Second Pilgrim's Pride ex CIO Embroiled in Federal Price Fixing Investigation." *Denver Business Journal*. 10/07/2020. <https://www.bizjournals.com/denver/news/2020/10/07/pilgrims-pride-chicken-price-fixing-charges.html>
49. Nelson, Eshe; Tejada, Carlos. "Pilgrim's Pride to Pay \$110 Million to Settle Charges of Fixing Chicken Prices." *New York Times*. 10/14/2020. <https://www.nytimes.com/2020/10/14/business/pilgrims-pride-price-fixing.html>
50. U.S. Employment Equal Opportunity Commission. Wild Fork Foods to Pay \$130K to Settle EEOC Suit for National Origin/Race Harassment and Retaliation. 5/04/2021. <https://www.eeoc.gov/newsroom/wild-fork-foods-pay-130k-settle-eeoc-suit-national-origin-race-harassment-and-retaliation>
51. Leonard, Mike. Pilgrim's Pride has Deal in Principle to Exit Wage Fixing Case. Bloomberg. June 16, 2021. <https://news.bloomberglaw.com/class-action/pilgrims-pride-has-deal-in-principle-to-exit-wage-fixing-case>
52. Graber, Roy. JBS USA Agrees to Settle Pork Antitrust Lawsuit. WattAgNet. July 13, 2021. <https://www.wattagnet.com/articles/43210-jbs-usa-agrees-to-settle-pork-antitrust-lawsuit?v=preview>
53. GRAIN. Corporate Greenwashing: Net Zero and Nature-Based Solutions are a Deadly Fraud. March 17, 2021. <https://grain.org/en/article/6634-corporate-greenwashing-net-zero-and-nature-based-solutions-are-a-deadly-fraud>
54. Foley, Jon. The World Needs Better Climate Pledges. June 16, 2021. <https://globalecoguy.org/the-world-needs-better-climate-pledges-4c3d969790d3>
55. Rockstrom, Johan; Whiteman, Gail. Shell's Net Zero Plan Will be Judged on Science, Not Spin. Climate Change News. May 18, 2021. <https://www.climatechangenews.com/2021/05/18/shells-net-zero-plan-will-judged-science-not-spin/>
56. Hauter, Wenonah. Big Oil Wants You to Believe a Tanker Full of Fossil Fuel Can Be "Carbon Neutral". Salon. June 13, 2021. <https://www.salon.com/2021/06/13/big-oil-wants-you-to-believe-a-tanker-full-of-fossil-fuel-can-be-carbon-neutral/>

57. Farand, Chloe. Tar Sands Companies Aim Net Zero by 2050 With No Plan to Extract Less Oil. Climate Change News. June 10, 2021. <https://www.climatechangenews.com/2021/06/10/tar-sands-companies-aim-net-zero-2050-no-plan-extract-less-oil/>

58. Paul, Sonali. Australian Environmental Group Sues Santos Over Clean Energy Claims. Reuters. August 26, 2021. <https://www.reuters.com/business/sustainable-business/australian-environmental-group-sues-santos-over-clean-energy-claims-2021-08-26/>

59. West, Oliver. JBS Shows SLB Label Is Nothing Without Scrutiny. Global Capital. June 15, 2021. <https://www.globalcapital.com/article/28wqeu5ow17ngh8xxslc/comment/tuesday-view/jbs-shows-slb-label-is-nothing-without-scrutiny>

60. Boztas, Senay. “Netherlands Proposes Radical Plans to Cut Livestock Numbers by Almost a Third.” The Guardian. September 9, 2021. <https://www.theguardian.com/environment/2021/sep/09/netherlands-proposes-radical-plans-to-cut-livestock-numbers-by-almost-a-third>

61. Public Justice. Climate, Environmental Justice Groups Call for Biden EPA to Hold Industrial Dairy and Hog Operations Accountable and to Reject Big Ag Technology. April 6, 2021. <https://food.publicjustice.net/methane-petition-press-release/>

62. Ritchie, Hannah. Excess Fertilizer Use: Which Countries Cause Environmental Damage by Overapplying Fertilizers? Our World in Data. September 7, 2021. <https://ourworldindata.org/excess-fertilizer>