December 18, 2024

Louis Aspey, Associate Chief
Natural Resources Conservation Service
U.S. Department of Agriculture
1400 Independence Ave., S.W.
Washington, DC 20250

Submitted via regulations.gov

RE: Comments in response to Request for Public Input About Implementation of the Conservation Practices to Support Climate Change Mitigation and Adaptation, Docket No. NRCS-2024-0015

Dear Associate Chief Aspey:

The Center for Biological Diversity, on behalf of its 1.7 million members and supporters, submits these comments in response to the Natural Resources Conservation Service's (NRCS) Notice: Request for Public Input About Implementation of the Conservation Practices To Support Climate Change Mitigation and Adaptation, Docket No. NRCS-2024-0015, 89 FR 88719 (November 8, 2024).[1] The Center for Biological Diversity ("the Center") is a national 501(c)(3) nonprofit conservation organization dedicated to the protection of endangered species and wild places. We appreciate the opportunity to offer recommendations on how NRCS can improve its climate-smart Conservation Practice Standards (CPS).

While we support and applaud NRCS's efforts to better address the climate impacts of the nation's agricultural system and to identify the CPS that are most successful at mitigating greenhouse gas (GHG) emissions, we find evidence to contradict NRCS's selection of certain CPS as climate-smart mitigation activities. It is important to carefully select only scientifically backed and most effective conservation practices for inclusion on the Climate-Smart Agriculture and Forestry (CSAF) Mitigation Activities List because the list determines eligibility for billions of critical conservation dollars via the Inflation Reduction Act (IRA) funding. As described below, this funding provides a critical opportunity to expand effective, urgently needed conservation practices; however, allocating it to practices that lack evidence will only worsen the detrimental impacts of agriculture on greenhouse gas emissions.

[1] Request for Public Input About Implementation of the Conservation Practices To Support Climate Change Mitigation and Adaptation, 89 FR 88719 (November 8, 2024). https://www.federalregister.gov/documents/2024/11/08/2024-26051/request-for-public-input-about-implementation-of-the-conservation-practices-to-support-climate

We urge NRCS to provide more transparency in explaining its selection of CPS as CSAF activities and to thoroughly examine the evidence using the methodological criteria we describe to evaluate effectiveness of these activities, both now and in all future instances.

I. NRCS's Process for Choosing CSAF Mitigation Activities Lacks Transparency

NRCS states that it chooses which CPS to include in its CSAF Mitigation Activities list based on two criteria: 1) mitigation benefit, determined by whether "the activity is expected to result in a direct impact on net greenhouse gas emission reduction or removal within a given scope as supported by the scientific literature," and 2) quantification of estimated benefit, determined via a "science-based approach for quantitatively estimating mitigation benefits using available NRCS activity data."[2] We support the general premise of these criteria. However, the publicly available information in the NRCS Conservation Practices and Greenhouse Gas Mitigation Information dashboard that specifically explains NRCS's approach to selecting each activity on an individual basis[3] contains insufficient data to support NRCS's decisions to include some of the practices on its CSAF Mitigation Activities List. The dashboard does not provide explanations for why tools and sources were chosen or how they were specifically used to calculate emissions reduction estimates.

We are concerned that NRCS is continuing to add practices to the list that do not meet the criterion of independent quantitative evaluation before being added. Previously, newly added practices that relied only on scientific literature and were not quantitatively evaluated were marked as "provisional," [4] which created a clear distinction from fully evaluated activities that undergo an independent quantitative review to estimate their GHG mitigation benefits. Relying solely on scientific literature to make recommendations is insufficient, not only because it fails to meet NRCS's own criteria, but also because it fails to demonstrate on-the-ground impacts, which can vary significantly from scientific literature based on operation size, region, climate, combination of practices, and other factors. NRCS has since scrapped its use of the word "provisional" but has not shown that it has changed the process for adding new, unevaluated practices. Instead, it only claims that all listed practices are "expected to provide a direct impact resulting in net greenhouse gas emission reduction or removal as supported by the scientific literature."[5]

NRCS explains on its website that it estimates the climate impact of CSAF activities using coefficients derived from Colorado State University's (CSU) COMET-Planner meta-model and "other available quantification methodologies, guidance, and protocols," including the USDA Quantifying Greenhouse Gas Fluxes: Methods for Entity-Scale Inventory and guidance from the

[2] USDA NRCS. (n.d.). *FAQs: Climate-smart agriculture and forestry mitigation activities and Inflation Reduction Act funding.* https://www.nrcs.usda.gov/our-agency/faqs-climate-smart-agriculture-and-forestry-mitigation-activities-and-inflation.
[3] USDA NRCS. (n.d.). *NRCS conservation practices and greenhouse gas mitigation information* [Dashboard]. https://publicdashboards.dl.usda.gov/t/FPAC_PUB/views/NRCSConservationPracticesandGreenhouseGasMitigation/MitigationSummaries?%3Aembed=y&%3AisGuestRedirectFromVizportal=y#3. Last accessed December 2, 2024.
[4] USDA NRCS. (n.d.). *FAQs: Climate-smart agriculture and forestry mitigation activities and Inflation Reduction Act funding.* https://www.nrcs.usda.gov/our-agency/faqs-climate-smart-agriculture-and-forestry-mitigation-activities-and-inflation.
[5] *Ibid.*

UN's Intergovernmental Panel on Climate Change (IPCC).[6] While we support using IPCC data and other scientifically rigorous sources when available, there have been questions raised about the validity of the COMET model: One CSU researcher who worked on the program is quoted as saying that the climate benefits of the practices they measured may be smaller than they estimated and that they failed to report uncertainties in the data, while another researcher on the same team even filed a complaint alleging purposeful suppression of uncertainty results.[7] Research models that are scientifically controversial should not form the foundation for government assessments, especially when tied to substantial amounts of federal funding.

NRCS also does not disclose how it chooses which literature to cite and which to ignore, or how it considers or discusses any conflicts of interest regarding the sources of certain literature. As an example of the latter point, on NRCS's dashboard,[8] the inclusion of feed management as a CSAF activity is supported by a study by Beauchemin et al. (2022) that was published in the *Journal of Dairy Science*, which is owned and operated by the American Dairy Science Association, an organization "committed to advancing the dairy industry."[9]

In general, NRCS's failure to adhere to its own criteria, not fully evaluating practices for their climate mitigation benefits, and its reliance on sources with conflicts of interest undermines the credibility of its programs.

II. NRCS Must Use Accurate and Comprehensive Assessment Tools to Evaluate the Net Environmental Effects of Conservation Practices

This section answers the question: "What models, methods, data, literature, and tools should NRCS consider as it develops and refines its estimation of the climate change mitigation benefits associated with CPS?"[10]

a. Use a Lifecycle Assessment of Greenhouse Gas Emissions and Other Factors in Calculating Climate-Smart Effectiveness

In 2022, the Center submitted a set of public comments to NRCS detailing our recommendations for scientifically and environmentally sound implementation of Inflation Reduction Act funding.[11] We would like to reiterate our strong endorsement from those comments of the use of comprehensive lifecycle assessment (LCA) data to estimate the true net emissions effects of each

[6] *Ibid.*
[7] Popkin, G. (2023, July 27). Shaky ground. *Science, 381,* 6656. https://www.science.org/content/article/farmers-paid-millions-trap-carbon-soils-will-it-actually-help-planet
[8] USDA NRCS. (n.d.). *NRCS conservation practices and greenhouse gas mitigation information: Feed management (592).* https://publicdashboards.dl.usda.gov/t/FPAC_PUB/views/NRCSConservationPracticesandGreenhouseGasMitigation/MitigationSummaries?%3Aembed=y&%3AisGuestRedirectFromVizportal=y#3
[9] American Dairy Science Association. (n.d.). *About ADSA.* https://www.adsa.org/About-ADSA/About
[10] Request for Public Input About Implementation of the Conservation Practices To Support Climate Change Mitigation and Adaptation, 89 FR 88719 (November 8, 2024). https://www.federalregister.gov/documents/2024/11/08/2024-26051/request-for-public-input-about-implementation-of-the-conservation-practices-to-support-climate
[11] Connor, H., & Feldstein, S. (2022). *Comment on FR Doc # 2022-25292.* Regulations.gov. https://www.regulations.gov/comment/NRCS-2022-0015-0369

CPS. LCAs factor in emissions across all aspects of the food supply chain from farm to retail, including upstream emissions from feed production, manufacturing, enteric methane, manure management, land use, and on-farm energy use, as well as downstream emissions from transportation, slaughter, processing, and packaging. They provide the most accurate and holistic picture of a practice's real net climate impact.

When measuring absolute reductions in GHG emissions, NRCS should also ensure that producers are not counting "offset" emissions, such as through the purchase of carbon credits, in their net reductions. Such offset programs mask the actual number of emissions being created while enabling producers to continue polluting the environment without repercussions. Carbon markets and cap-and-trade programs have been shown to be highly unregulated and unreliable, causing widespread inaccuracies in reporting, noncompliance, and even fraud in some cases.[12] They have also proven unreliable in reducing total net emissions, with some carbon market programs leading to increases in gas generation, GHG emissions, and other air pollutants.[13] Investigations also reveal widespread harm to Indigenous peoples and disadvantaged local communities by carbon offset projects.[14] In California, for example, a report found that communities with higher percentages of low-income people and people of color were more likely to live near polluting plants that participate in cap-and-trade programs.[15] Carbon markets can hence exacerbate inequalities by allowing polluters in disadvantaged communities to pay to continue polluting, and should therefore not be used under the climate-smart guise.[16]

Corporate agribusinesses have been known to greenwash their practices and exaggerate climate benefits by focusing only on singular reductions and not the entire LCA effect. For example, studies published by the American Dairy Science Association that did not use LCA found that the cow feed additive 3NOP reduced GHG emissions on dairy farms by 36%,[17] but another independent study that did use LCA found reduction to be three times less than that, at just 12%.[18] This highlights the importance of using comprehensive methods of analysis—not the selective methods often preferred by big agribusinesses.

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[12] U.S. Department of Agriculture. (2023, October). *Report to Congress: A general assessment of the role of agriculture and forestry in U.S. carbon markets.* U.S. Department of Agriculture. https://www.usda.gov/sites/default/files/documents/USDA-General-Assessment-of-the-Role-of-Agriculture-and-Forestry-in-US-Carbon-Markets.pdf

[13] Cushing, L., Blaustein-Rejto, D., Wander, M., Pastor, M., Sadd, J., Zhu, A., & Morello-Frosch, R. (2018). Carbon trading, co-pollutants, and environmental equity: Evidence from California's cap-and-trade program (2011–2015). *PLOS Medicine*, 1–21. https://doi.org/10.1371/journal.pmed.1002604

[14] Dunne, D., & Quiroz, T. (2023, September 25). *Mapped: The impacts of carbon-offset projects around the world.* Carbon Brief. https://interactive.carbonbrief.org/carbon-offsets-2023/mapped.html

[15] Tigue, K. (2022, February 25). *Why do environmental justice advocates oppose carbon markets? Look at California, they say.* Inside Climate News. https://insideclimatenews.org/news/25022022/why-do-environmental-justice-advocates-oppose-carbon-markets-look-at-california-they-say/

[16] NAACP. (n.d.). *Report: Nuts, bolts, and pitfalls of carbon pricing: An equity-based primer on paying to pollute.* https://naacp.org/resources/nuts-bolts-and-pitfalls-carbon-pricing-equity-based-primer-paying-pollute#:~:text=Within%20the%20U.S.%2C%20there%20is,where%20significant%20fossil%20fuel%2Drelated

[17] Melgar, A., Welter, K.C., Nedelkov,. K., Martins, C.M.M.R., Harper, M.T., Oh, J., Raisanen, S.E., Chen, X., Cueva, S.F., Duval, S., & Hristov, A.N. (2020). Dose-response effect of 3-nitooxypropanol on enteric methane emissions in dairy cows. *Journal of Dairy Science, 103*(7), 6145-6156. https://www.doi.org/10.3168/jds.2019-17840

[18] Feng, X., & Kebreab, E. (2020). Net reductions in greenhouse gas emissions from feed additive use in California dairy cattle. *PLoS One, 15*(9), e0234289. https://doi.org/10.1371/journal.pone.0234289

It's also important to ensure that soil carbon sequestration is calculated into GHG emissions reductions only in the cases with commitments that ensure the carbon will remain in the ground long-term. Carbon sequestration in soil is time-limited, reversible, variable in its effects, and prone to leakage.[19] For example 30% of "no-till" farms return to tillage at some point and re-release the stored carbon into the atmosphere.[20] Attempts to factor in soil carbon sequestration to calculations of net GHG reductions from CPS, such as soil carbon amendment, should not be considered climate-smart unless accompanied by guarantees that the soil will be left permanently undisturbed.

b. Use a 20-Year Time Frame for Global Warming Potential

While most calculations use a 100-year time frame (GWP100) for global warming potential, we strongly endorse the use of a 20-year time frame (GWP20), which will facilitate meeting urgent and nearer-term emissions reductions targets. The use of a shorter time frame is more aligned with the need to rapidly reduce emissions and more accurately reflects why industrial animal agriculture should not be supported through climate-smart programs.

Adopting GWP20 as the only acceptable time frame for evaluating NRCS practices would also create a standard that prevents the use of misleading metrics such as GWP*. GWP* is frequently used by agribusinesses to greenwash and distort the true GHG emissions of their production systems.[21] While GWP20 measures the total warming impact of GHG emissions across 20 years compared to a baseline scenario in which these emissions are not produced, GWP* instead narrowly measures the changes in GWP of GHG emissions compared to the GWP in a chosen historical year.[22] This means that GWP* treats that year's warming impact as the baseline, even if it is large, measuring only the change rather than the total warming impact.[23] This allows producers, including those operations responsible for the greatest amount of emissions, to continue polluting at the same rate as the historical baseline and call themselves "climate neutral."[24]

c. Include All Negative Side Effects to the Environment and the Public in Evaluating CPS Benefits

Climate-smart criteria cannot rely on a singular metric. If a practice produces net climate and environmental harms, it cannot be considered climate-smart, even if a single metric demonstrates

[19] Garnett, T., Godde, C., Muller, A., Roos, E., Smith, P., de Boer, I., zu Ermgassen, E., Herrero, M., van Middelaar, C., Schader, C., & van Zanten, H. (2017). *Grazed and confused? Ruminating on cattle, grazing systems, methane, nitrous oxide, the soil carbon sequestration question – and what it all means for greenhouse gas emissions.* Food Climate Research Network and University of Oxford. https://oms-www.files.svdcdn.com/production/downloads/reports/fcrn_gnc_report.pdf

[20] The Breakthrough Institute. (2020, March 9). *The limits of soil carbon sequestration.* https://thebreakthrough.org/issues/food-agriculture-environment/carbon-farming#:~:text=This%20is%20the%20problem%20of,the%20original%20carbon%20sequestration%20benefits

[21] Bowman, M., & Hurley, N. (2024, November). *Policy briefing: GWP* — An inappropriate and dangerous measure of livestock methane's contribution to global warming.* Feedback. https://feedbackglobal.org/wp-content/uploads/2024/12/Feedback-2024-GWPStar-Policy-Briefing.pdf

[22] *Ibid.*

[23] *Ibid.*

[24] *Ibid.*

some reduced GHGs.. All practices should instead be evaluated based on their net emissions and other net environmental, health and equity impacts. NRCS should consider all potential direct, indirect and cumulative foreseeable negative side effects of the practices it reviews and the climate impacts of those practices, including environmental impacts on native ecosystems and natural resources like clean water and air, and socioeconomic and health impacts on farmers, food workers, local communities, and vulnerable populations.

NRCS should identify and measure the impacts of each CPS on the implementing operation's surrounding environment. This includes water, soil, and air pollution and contamination (both source point and non-source point)—including effects on the nutrient content of soil and the eutrophication of downstream freshwater sources—as well as the loss of nearby critical habitats, native species, and biodiversity. It should also consider whether the practice consumes an unsustainable proportion of finite resources, including land area, vegetation, water, and energy. When it comes to livestock production, part of a holistic analysis requires also factoring in the environmental effects and resource consumption that go into producing the animals' feed. NRCS should also consider whether an auxiliary effect of one practice may lead to the implementation or expansion of a different harmful practice. For example, by funding methane digesters and biogas production, NRCS is contributing to the "manure gold rush," a phenomenon in which companies are incentivized to produce massive quantities of liquid manure to convert to gas.[25] This manure can leak and spill into the environment and surrounding communities, creating major public health and safety hazards while polluting critical waterways and harming wildlife.[26] As another example, the implementation of "no-till" practices has been shown to increase usage of harmful herbicides to make up for losses in productivity.[27]

NRCS should also consider the environmental justice (EJ) effects of certain CPS. The USDA's 2022-2026 Strategic Plan committed to developing solutions to EJ issues and stated that rural communities are among the most negatively impacted by climate change and pollution.[28] Livestock operations are particularly harmful to vulnerable and marginalized communities, so NRCS should refrain from funding practices that further entrench or expand these operations in a way that will cause more harm. For example, several studies in North Carolina—one of the top meat-producing states—found that industrial animal agriculture facilities were more highly

[25] Dvorak, P. (2022, February 19). *California's green-energy subsidies spur a gold rush in cow manure.* The Wall Street Journal. https://www.wsj.com/articles/californias-green-energy-subsidies-spur-a-gold-rush-in-cow-manure-11645279200

[26] Schlechinger, A. (2024, March 19). *Animal feeding operations harm the environment, climate and public health.* Environmental Working Group. https://www.ewg.org/research/animal-feeding-operations-harm-environment-climate-and-public-health

[27] Wozniacka, G. (2021, May 3). *Carbon markets stand to reward 'no-till' farmers. But most are still tilling the soil.* Civil Eats. https://civileats.com/2021/05/03/carbon-markets-stand-to-reward-no-till-farmers-but-most-are-still-tilling-the-soil/

[28] U.S. Department of Agriculture. (2022, March). Strategic plan fiscal years 2022-2026. *U.S. Department of Agriculture.* https://www.usda.gov/sites/default/files/documents/usda-fy-2022-2026-strategic-plan.pdf

concentrated in areas with a greater percentage of low-income and minority populations.[29] [30] [31] Greater proximity to concentrated animal feeding operations (CAFOs) is linked to higher rates of gastrointestinal, [32] respiratory, [33] urinary, [34] cardiovascular,[35] and other diseases, as well as mortality. One study found that 15,900 annual deaths result from food-related atmospheric fine particulate matter, and that of these, 80% are attributable to animal-based foods.[36]

III. CSAF Mitigation Activities that Support the Industrial Animal Agriculture System Should Not Be Considered Climate-Smart

In the Center's 2022 comments, we discussed our concerns over the use of climate-smart funding toward practices that support the entrenchment and expansion of the industrial animal agriculture industry. We will reiterate some of these points herein.

Research shows that a transition away from the industrial animal agriculture system is urgent and necessary to prevent irreversible global warming. A recent study found that GHG emissions from livestock production must halve by 2030 to meet the goals of the Paris Climate Agreement,[37] while another found that phasing out animal agriculture over the next 15 years would have the same emissions effect as stabilizing GHG emissions for 30 years and offsetting carbon dioxide emissions by 68% through the end of the century.[38] Animal agriculture is the leading cause of U.S. methane emissions, contributing about 34%, while methane emissions from manure management alone have increased over 65% since 1990.[39]

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[29] Son, J. Y., Muenich, R. L., Schaffer-Smith, D., Miranda, M. L., & Bell, M. L. (2021). Distribution of environmental justice metrics for exposure to CAFOs in North Carolina, USA. *Environmental research, 195,* 110862. https://doi.org/10.1016/j.envres.2021.110862

[30] Nicole W. (2013). CAFOs and environmental justice: the case of North Carolina. *Environmental health perspectives, 121*(6), A182–A189. https://doi.org/10.1289/ehp.121-a182

[31] Wing, S., Cole, D., & Grant, G. (2000). Environmental injustice in North Carolina's hog industry. *Environmental health perspectives, 108*(3), 225–231. https://doi.org/10.1289/ehp.00108225

[32] Quist, A.J.L., Holcomb, D.A., Fliss, M.D., Delamater, P.L., Richardson, D.B., & Engel, L.S. (2022). Exposure to industrial hog operations and gastrointestinal illness in North Carolina, USA. *Science of the Total Environment, 15*(830), 154823. https://www.doi.org/10.1016/j.scitotenv.2022.154823

[33] Schultz, A.A., Peppard, P., Gangnan, R.E., & Malecki, K.M.C. (2019). Residential proximity to concentrated animal feeding operations and allergic and respiratory disease. *Environment International, 130,* 104911. https://doi.org/10.1016/j.envint.2019.104911

[34] Holcomb, D. A., Quist, A.J., & Engel, L. S. (2022). Exposure to industrial hog and poultry operations and urinary tract infections in North Carolina, USA. *Science of the Total Environment, 853,* 158749. https://doi.org/10.1016/j.scitotenv.2022.158749

[35] Son, J. Y., Miranda, M. L., & Bell, M. L. (2021). Exposure to concentrated animal feeding operations (CAFOs) and risk of mortality in North Carolina, USA. *Science of the Total Environment, 799,* 149407. https://doi.org/10.1016/j.scitotenv.2021.149407

[36] Domingo, N.G.G., Balasubramanian, D., Thakrar, S.K., Clark, M.A., Adams, P.J., Marshall, J.D., Muller, N.Z., Pandis, S.N., Polasky, S., Robinson, A.L., Tessum, C.W., Tilman, D., Tschofen, P., & Hill, J.D. (2021). Air quality–related health damages of food. *PNAS, 118*(20), e2013637118. https://doi.org/10.1073/pnas.2013637118

[37] Navatt, H., Hayek, M.N., Behrens, P., & Ripple, W.J. (2024). *Options for a Paris-compliant livestock sector.* Harvard Law School. https://animal.law.harvard.edu/wp-content/uploads/Paris-compliant-livestock-report.pdf

[38] Eisen, M.B., & Brown, P.O. (2022). Rapid global phaseout of animal agriculture has the potential to stabilize greenhouse gas levels for 30 years and offset 68 percent of CO2 emissions this century. *PLOS Climate, 1*(2), e0000010. https://doi.org/10.1371/journal.pclm.0000010

[39] U.S. EPA. (2024). *Inventory of U.S. greenhouse gas emissions and sinks, 1990-2022.* https://www.epa.gov/ghgemissions/inventory-us-greenhouse-gas-emissions-and-sinks-1990-2022

We have long been concerned that a substantial amount of funding for climate-smart practices is directed to the greatest agricultural climate polluters, industrial-scale meat and dairy corporations.[40] A recent investigative article found that industrial meat and dairy made up the greatest share of climate-smart projects—almost 79% (not including the projects for livestock feed) of a recent $2.8 billion funding allocation from USDA.[41] Cargill and Tyson Foods are leading climate-smart projects totaling over $490 million.[42] In July 2024, we co-submitted a petition for rulemaking to USDA requesting better data collection, transparency, and defined criteria in selecting and reporting on climate-smart projects in the Partnerships for Climate-Smart Commodities program.[43] NRCS funding for conservation practices is similarly vulnerable to this same misallocation of climate-smart funds.

Part of the problem lies with how these practices, for which big factory farm operations are receiving millions of dollars, are classified. NRCS added five new activities—all marked "provisional"—where there had previously only been one to its FY2024 CSAF Mitigation Activities List under the Livestock Partnership category: composting facility, waste storage facility, roofs and covers, feed management, and waste separation facility.[44] According to the Environmental Working Group (EWG), the influx of industrial animal agriculture-related activities coincides with a large increase in the percentage of EQIP funding that is now going to practices deemed "climate-smart"—from 23% before the addition to 63% after—but the allocation of funding hasn't changed, only the way the funding is classified.[45] [46] Unfortunately, as will be detailed, many of these newly added animal agriculture-related practices are extremely detrimental to the environment and human health and cannot be considered climate-smart.

In February 2024, 15 members of Congress sent a letter to USDA Secretary Vilsack expressing their concern over the addition of these industrial animal agriculture practices to the CSAF list, and requesting their removal, because they "further entrench the unsustainable, inhumane industrial model by funneling a significant portion of conservation dollars to a handful of large

[40] Goswami, O. (2022, December 8). *As the USDA invests in "climate-smart" agriculture, it's hard to follow the money.* Union of Concerned Scientists. https://blog.ucsusa.org/omanjana-goswami/in-climate-smart-agriculture-its-hard-to-follow-the-money/
[41] *Ibid.*
[42] *Ibid.*
[43] Center for Biological Diversity, Secchi, S., & The Institute for Agriculture and Trade Policy. (2024). *Petition for rulemaking to the U.S. Department of Agriculture.* https://biologicaldiversity.org/programs/environmental_health/pdfs/2024-07-10_ClimateSmartPetition.pdf
[44] USDA NRCS. (2023, September). *Climate-smart agriculture and forestry (CSAF) mitigation activities list for FY2024.* https://www.nrcs.usda.gov/sites/default/files/2023-10/EQIP%20IRA%20CSAF%20Mitigation%20Activities%20List%20for%20FY%202024_%20webposting_October%202023.pdf
[45] Schechinger, A. (2022, September 28). *New EWG analysis: Of $7.4B spent on two of USDA's biggest conservation programs in recent years, very little went to 'climate-smart' agriculture.* Environmental Working Group. https://www.ewg.org/research/new-ewg-analysis-74b-spent-two-usdas-biggest-conservation-programs-recent-years-very
[46] Schechinger, A. (2024, February 28). *Many newly labeled USDA climate-smart conservation practices lack climate benefits.* Environmental Working Group. https://www.ewg.org/research/many-newly-labeled-usda-climate-smart-conservation-practices-lack-climate-benefits

producers instead of supporting more small and midsized-producers employing meaningful conservation practices."[47]

The addition of these animal agriculture-related activities, which were also included in the subsequent FY 2025 CSAF list,[48] is concerning because there is not sufficient evidence to prove that these practices produce a net lifecycle reduction in GHG emissions. On the contrary, studies show that many industrial animal agriculture practices lead to increases in emissions and other harmful substances that pollute the environment and surrounding communities, as will be discussed specific to each practice in the next section. It is irresponsible for the government to pour billions of dollars into supporting the implementation of these practices, further entrenching the most dangerous aspects of the industrial animal agriculture system instead of supporting small, mid-sized, and marginalized farmers who are dedicated to implementing evidence-based, effective emissions-reduction practices.

IV. NRCS Should Remove the Following Practices from the CSAF Mitigation Activities List

The following are CPS that we urge NRCS to remove from the CSAF list, thereby disqualifying them from climate-smart funding. Although some of the practices described below may show signs of reduced GHG emissions in a specific context, we are concerned that NRCS has not fully evaluated them in the entire lifecycle analysis context of their emissions, and that it is not considering their other negative side effects. We have attached scientific studies supporting our claims to this comment, per NRCS's request for suggested literature and evidence to help it better evaluate its practices.

Anaerobic digester (366) and **roofs and covers (367):** Biogas production through anaerobic methane digesters and captured using roofs and covers has been shown to increase ammonia emissions by over 45%[49] [50] and result in leakage of methane gas at a rate of 15%.[51] Methane digesters can only be implemented by very large CAFOs—requiring at least 2,000 cows[52] or

[47] Booker, C., Adams, A., et al. (2024, February 1). *Letter to Secretary Vilsack about industrial animal agriculture practices eligible for conservation funding in the Inflation Reduction Act.* 118th Congress. https://www.booker.senate.gov/imo/media/doc/Letter%20to%20Vilsack%20Re%20Factory%20Farm%20Practices%20Eligibility%20for%20IRA%20Conservation%20Funding.pdf

[48] USDA NRCS. (2024, August). *Climate-smart agriculture and forestry (CSAF) mitigation activities list for FY2025*. https://www.nrcs.usda.gov/sites/default/files/2023-10/NRCS-CSAF-Mitigation-Activities-List.pdf

[49] Harper, L.A., Flesch, T.K., Weaver, K.H., & Wilson, J.D. (2010). The effect of biofuel production on swine farm methane and ammonia emissions. *Journal of Environmental Quality, 39*(6), 1984-1992. https://doi.org/10.2134/jeq2010.0172

[50] Weaver, K. H., Harper, L. A., & Brown, S. M. (2012). Effects on carbon and nitrogen emissions due to swine manure removal for biofuel production. *Journal of Environmental Quality, 41*(5), 1371–1382. https://doi.org/10.2134/jeq2011.0374

[51] Grubert, E. (2020). At scale, renewable natural gas systems could be climate intensive: the influence of methane feedstock and leakage rates. Environmental Research Letters, 15, 084041. https://www.doi.org/10.1088/1748-9326/ab9335.

[52] AcMoody, A., & Sousa, P. (2020). *Interest in California dairy manure methane digesters follows the money.* CoBank. https://www.cobank.com/knowledge-exchange/dairy/interest-in-california-dairy-manure-methane-digesters-follows-the-money?utm_source=newswire&utm_medium=wire&utm_campaign=knowledge-exchange&utm_content

10,000 hogs[53] for economic viability—meaning any federal investment in them is a contribution to the further expansion and consolidation of corporate agribusinesses at the expense of smaller farmers.[54] As mentioned, they also incentivize the increased production of manure, one of the leading contributors to U.S. methane emissions.[55] One study concluded that biogases are "unlikely [to]…deliver GHG-negative, or even zero GHG, energy at scale."[56]

Feed management (592): Studies on the direct impact of diet manipulation and feed additives on reducing net GHG emissions are new, limited, and inconclusive,[57] and many appear to have conflicts of interest due to associations with the animal agriculture industry.[58] This should not be considered a climate-smart activity until longer-term, conclusive research is produced, because, as one study stated, "the long-term effects and external factors affecting the efficacy of the inhibitor need to be further studied" and "effects of diet on manure composition and greenhouse gas emissions during storage (e.g., emission trade-offs) have not been adequately studied."[59] Furthermore, if one of the industry's most promising feed additives, red seaweed, were to be adopted at-scale by harvesting wild seaweed, the amount required would deplete the oceans.[60]

Prescribed grazing (528): Even the best-managed grazing systems cause undue harm to and displace wildlife, destroy natural resources and habitats, and produce excess GHG emissions. Grazing systems are currently responsible for 20% of GHGs produced by livestock, despite making up only 4% of the global meat and dairy supply.[61] They are highly inefficient, taking up 77% of the Earth's agricultural land despite producing just 18% of calories consumed.[62]A widespread shift to grazing is impossible at current levels: Existing pastureland is only large enough to support 27% of current beef production, and a nationwide switch to grass-fed beef would result in a 43% increase in enteric methane emissions and an 8% increase in the U.S.'s

[53] U.S. EPA. (2020). *AgStar project development handbook* (3rd ed.). https://www.epa.gov/sites/default/files/2014-12/documents/agstar-handbook.pdf
[54] Association of Irritated Residents et al. (2021). *Petition for rulemaking to exclude all fuels derived from biomethane from dairy and swine manure from the low carbon fuel standard.* https://food.publicjustice.net/wp-content/uploads/sites/3/2021/10/Factory-Farm-Gas-Petition-FINAL.pdf
[55] Dvorak, P. (2022, February 19). *California's green-energy subsidies spur a gold rush in cow manure.* The Wall Street Journal. https://www.wsj.com/articles/californias-green-energy-subsidies-spur-a-gold-rush-in-cow-manure-11645279200
[56] Grubert, E. (2020). At scale, renewable natural gas systems could be climate intensive: the influence of methane feedstock and leakage rates. *Environmental Research Letters, 15,* 084041. https://doi.org/10.1088/1748-9326/ab9335
[57] Toensmeier, E. (2024, August 1). *Are livestock feed additives the future or folly?* Project Drawdown. https://drawdown.org/insights/are-livestock-feed-additives-the-future-or-folly#:~:text=They%20reduce%20some%20of%20the,comprise%20much%20of%20global%20livestock
[58] Carrazco, A. (2021, May 27). *How can cattle feed additives reduce greenhouse gas emissions?* UC Davis CLEAR Center. https://clear.ucdavis.edu/explainers/how-can-cattle-feed-additives-reduce-greenhouse-gas-emissions
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[60] Mulhollem, J. (2019, June 17). *Seaweed feed additive cuts livestock methane but poses questions.* Penn State. https://www.psu.edu/news/research/story/seaweed-feed-additive-cuts-livestock-methane-poses-questions
[61] Center for Biological Diversity and A Well-Fed World. (n.d.). *Grazing facts: Solutions to improve our climate and thrive with wildlife.* https://grazingfacts.com/
[62] Poore, J., & Nemecek, T. (2018). Reducing food's environmental impacts through producers and consumers. *Science, 360,* 987-992. https://www.doi.org/10.1126/science.aaq0216

total GHGs.[63] As to claims about the benefits of prescribed grazing systems, one study compared a prescribed grazing system to a conventional grazing system over five years and found that prescribed grazing did not improve the quality, productivity, or density of vegetation of perennial grasses;[64] it also requires 2.5 times more land than conventional grazing.[65] Grazing is also shown to increase the growth of invasive cheatgrass, a highly flammable plant that destroys native fire-resistant ecosystems and leads to more intense wildfires.[66] Meanwhile, prescribed burning to clear land for grazing destroys critical ecosystems, turning them into barren lands and replacing forests with more flammable weeds while releasing more carbon and nitrous oxide into the atmosphere.[67]

Waste/manure management – composting facility (317), waste separation facility (632), and waste storage facility (313): U.S. livestock operations produce 1.4 billion tons of manure per year, which is an amount far too large for current capacity to handle, and this amount will continue to rise.[68] Therefore, supporting the continued production of manure through these practices is the opposite of climate-smart. Manure management systems have proven to be prone to leakage and spillage, which pollutes nearby habitats and ecosystems, and can also spread bacteria and pathogens to human communities.[69] Nitrogen and phosphorous contamination of critical freshwater sources as a direct result of manure runoff causes eutrophication and harmful algal blooms, killing aquatic ecosystems and threatening human health.[70] Meanwhile, the EPA states that solid waste storage, and even waste composting, can increase nitrous oxide emissions, while converting waste can increase methane emissions.[71] One study found that a wastewater

[63] Hayek, M.N., & Garret, R.D. (2018). Nationwide shift to grass-fed beef requires larger cattle population. *Environmental Research Letters, 13*(8), 084005. https://www.doi.org/10.1088/1748-9326/aad401

[64] Augustine, D.J., Derner, J.D., Fernandez-Gimenez, M.E., Porensky, L.M., Wilmer, H., Briske, D.D., & the CARM Stakeholder Group. (2020). Adaptive, multipaddock rotational grazing management: A ranch-scale assessment of effects on vegetation and livestock performance in semiarid rangeland. *Rangeland Ecology & Management, 73*(6), 796-810. https://doi.org/10.1016/j.rama.2020.07.005

[65] Rowntree, J.E., Stanley, P.L., Maciel, I.C.F., Thorbecke, M., Rosenzweig, S.T., Hancock, D.W., Guxman, A., & Raven, M.R. (2020). Ecosystem impacts and productive capacity of a multi-species pastured livestock system. *Frontiers in Sustainable Food Systems, 4*, 544984. https://doi.org/10.3389/fsufs.2020.544984

[66] Williamson, M.A., Fleishman, E., Mac Nally, R.C., Chambers, J.C., Bradley, B.A., Dobkin, D.S., Board, D.I., Fogarty, F.A., Horning, N., Leu, M., & Zillig, M.W. (2020). Fire, livestock grazing, topography, and precipitation affect occurrence and prevalence of cheatgrass (Bromus tectorum) in the central Great Basin, USA. *Biological Invasions, 22*, 663–680. https://doi.org/10.1007/s10530-019-02120-8

[67] Fite, K. (2021, January 15). *The public lands restoration apocalypse.* CounterPunch. https://www.counterpunch.org/2021/01/15/the-public-lands-restoration-apocalypse/

[68] Pagliari, P., Wilson, M., & He, Z. (2020). *Animal manure production and utilization: impact of modern concentrated animal feeding operations.* In Waldrip, H.M., Pagliari, P.H., He, Z (eds.), Animal manure: Production, characteristics, environmental concerns and management. *ASA Special Publications, 67*, pp. 1-14. https://doi.org/10.2134/asaspecpub67.c1

[69] Platt, J.R. (2018, October 15). *North Carolina's CAFO conundrum: How do you solve a problem like manure lagoons?* The Revelator. https://therevelator.org/cafo-conundrum-manure-lagoons/

[70] U.S. EPA. (n.d.). *Nutrient pollution: Sources and solutions: Agriculture.* https://www.epa.gov/nutrientpollution/sources-and-solutions-agriculture

[71] U.S. EPA. (n.d.). *Practices to reduce methane emissions from livestock manure management.* https://www.epa.gov/agstar/practices-reduce-methane-emissions-livestock-manure-management

lagoon alone accounted for 55% of on-farm emissions.[72] NRCS also states that solid and liquid manure can cause emissions of volatile organic compounds and other dangerous substances.[73]

V. NRCS Should Prioritize Climate-Smart Practices that Support the Long-Term Conservation of Native Ecosystems, Waterbodies, and Wetlands

Many conservation practices that are not tied to industrial animal agriculture may be very effective climate-smart strategies, and we urge NRCS to prioritize these. As stated in our 2022 letter, the Center believes that the most effective means of reducing net GHG emissions from agriculture is through the long-term conservation of wetlands, headwater streams, and native ecosystems. This entails ensuring that native grasslands and ecosystems are not converted for pasture or crop land use. In addition to preserving and protecting critical pollinator species, biodiversity, and natural resources, these ecosystems are essential to sequestering massive amounts of carbon in soil.[74] According to a UN-supported study, returning all current pasture lands to native forest cover would facilitate the storage of 72 gigatons of carbon.[75] Water sources in native, undisturbed grasslands, shrublands, wetlands, and headwater streams have also tested for significantly lower concentrations of nitrate (2%) compared to water sources in agricultural lands (as high as 20%).[76] [77]

Maintaining natural wetlands is pivotal to climate defense because of their major role in carbon sequestration – globally, they sequester about the same amount of carbon as forest ecosystems.[78] Wetlands also support the biodiversity of aquatic ecosystems and promote climate resilience and adaptation through flood protection, maintenance of local climate and water cycles, and reducing extreme temperatures.[79] [80] When converted or disturbed, however, wetlands accelerate climate

[72] Leytem, A. B., Dungan, R. S., Bjorneberg, D. L., & Koehn, A. C. (2011). Emissions of ammonia, methane, carbon dioxide, and nitrous oxide from dairy cattle housing and manure management systems. *Journal of Environmental Quality, 40*(5), 1383–1394. https://doi.org/10.2134/jeq2009.0515

[73] U.S. EPA. (2023, August). *Conservation practice standard: Waste storage facility (code 313).* https://www.nrcs.usda.gov/sites/default/files/2023-08/313_NHCP_CPS_Waste_Storage_Facility_2023.pdf

[74] Fargione, J.E., Bassett, S., Boucher, T., et al. (2018). Natural climate solutions for the United States. *Science Advances*, *4*(11). https://doi.org/10.1126/sciadv.aat1869

[75] Benton, T., Bieg, C., Harwatt, H., Pudasaini, R., & Wellesley, L. (2021). *Food system impacts on biodiversity loss.* Chatham House. https://www.chathamhouse.org/2021/02/food-system-impacts-biodiversity-loss

[76] Wilson, J.T., Baker, N.T., Moran, M.J., Crawford, C.G., Nowell, L.H., Toccalino, P.L., & Wilver, W.G. (2008). *Methods and sources of data used to develop selected water-quality indicators for steams and ground water for the 2007 edition of The State of the Nation's Ecosystems report with comparisons to the 2002 edition* [Open-File Report 2008-1110]. U.S. Geological Survey. https://doi.org/10.3133/ofr20081110

[77] McAllister, L.S., Bryce, S.A., Chapman, S.S., & Lattin, P.D. (2006). *Annotated bibliography of historical conditions in streams and rivers of the western United States.* U.S. EPA Office of Research and Development. https://nepis.epa.gov/Exe/ZyPURL.cgi?Dockey=P100LTK7.txt

[78] Moomaw, W.R., Chmura, G.L., Davies, G.T. et al. (2018). Wetlands in a changing climate: Science, policy, and management. *Wetlands, 38,* 183–205. https://doi.org/10.1007/s13157-018-1023-8

[79] U.S. EPA. (n.d.). *Why are wetlands important?* https://www.epa.gov/wetlands/why-are-wetlands-important#:~:text=Scientists%20now%20know%20that%20atmospheric,to%20moderate%20global%20climate%20conditions.

[80] Fennessy, S.M. & Lei, G. (2018). *Wetland restoration for climate change resilience.* Ramsar Briefing Note No.10. Gland, Switzerland: Ramsar Convention Secretariat. https://www.ramsar.org/sites/default/files/documents/library/bn10_restoration_climate_change_e.pdf

change by releasing carbon dioxide, methane, and nitrous oxide into the atmosphere.[81] Ensuring this doesn't happen is critical to fighting climate change.

CPS that specifically address the above goals and are already on the FY 2025 CSAF Mitigation Activities list include conservation cover (327), cover crop (340), critical area planting (342), range planting (550), restoration of rare and declining natural communities (643), riparian herbaceous cover (390), tree-shrub establishment (612), wetland restoration (657), and wildlife habitat planting (420).[82] NRCS should prioritize these practices and add the following CPS to the list: stream habitat improvement and management (395), wetland creation (658), wetland enhancement (659), wetland wildlife habitat management (644), and upland wildlife habitat management (645). When planting new vegetation for such projects, NRCS should only allow the use of native species. The promotion of and investment in these practices should be accompanied by the previously discussed removal of detrimental animal agriculture-related practices from the CSAF list.

In conclusion, the Center urges NRCS to improve the transparency and scientific rigor of its process to classify certain CPS as climate-smart, considering the full lifecycle analysis context of these practices' GHG emissions and effects on the environment, public health, and vulnerable communities. We urge NRCS to remove the most harmful industrial animal agriculture-related practices from the CSAF list and replace them with ones that promote long-term native ecosystem restoration and conservation, which will greatly reduce our net GHG emissions through carbon capture and sequestration, among other major environmental and human benefits.

Thank you for your consideration of these comments.

Respectfully submitted,

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[81] Moomaw, W.R., Chmura, G.L., Davies, G.T. et al. (2018). Wetlands in a changing climate: Science, policy, and management. *Wetlands, 38,* 183–205. https://doi.org/10.1007/s13157-018-1023-8
[82] USDA NRCS. (2024, August). *Climate-smart agriculture and forestry (CSAF) mitigation activities list for FY2025*. https://www.nrcs.usda.gov/sites/default/files/2023-10/NRCS-CSAF-Mitigation-Activities-List.pdf