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Ms. del Fierro,

Thank you for accepting public input on NRCS's Climate Change Mitigation and Adaptation conservation practice standards. The Institute for Agriculture and Trade Policy (IATP) is a 38-year old research and advocacy organization based in Minnesota that works toward a just, sustainable, and fair food and agriculture system. We have long engaged with NRCS on its conservation practices while advocating for more robust funding for climate mitigation and adaptation through these practices, as well as measures to ensure these programs equitably serve farmers at all scales of production.

Below are our comments on a number of practices NRCS has requested input on, namely CPS 313, 316, 367, 592, and 632. Where possible, we recommend strategies to reduce emissions from agricultural practices, cite relevant literature, and the targeting of funds toward cost-effective conservation. In assessing the emissions impacts of different practices, we recommend analyzing effects such as increase in herd size, leakage in biogas infrastructure, and increases in greenhouse gas emissions from gases such as nitrous oxide.

Please feel free to reach out with any questions you may have regarding our comments. Thank you for your service to the United States and your commitment to openness in setting policy.

Respectfully submitted,

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313 Waste Storage Facility

This comment on Practice 313 is identical to one submitted by the National Sustainable Agriculture Coalition (NSAC). This language is used with permission.

The 2024 CSAF Mitigation Activities List specifies that the climate smart status of CPS 313 applies only to the "compost bedded pack" facility where "manure is composted within the animal housing." However, the current (2023) Standard provides no criteria for compost bedded pack and refers to "composting" only once, in a paragraph under Considerations that lists other practices that may help reduce GHG emissions, including CPS 317 Composting Facility.

CPS 313 Waste Storage Facility provides engineering and environmental protection criteria for liquid storage facilities such as lagoons and stacking facilities for solid wastes. Studies in Canada have shown that total GHG emissions (CH_4 + N_2O) from beef and dairy manure were greatest for liquid storage, 20-70% less for dry-stacking and 45-80% less for composting (Pattey et al., 2005). However, waste separation into liquid and solid components (CPS 632, discussed below) can reduce CH_4 emissions from the liquid fraction by 55% (Edalti, 2023) and facilitate dry stacking or composting of the solids. Combining solid manure with biochar has been found to further reduce GHG emissions.

Provide Criteria for compost bedded pack systems for livestock waste storage

We recommend that NRCS contact the directors of the Alternative Manure Management Program (AMMP) at the California Department of Agriculture to inquire about the best practices for compost bedded pack systems and develop these into a set of Additional Criteria for Composted Bedded Pack waste facilities under CPS 313 Waste Storage Facility.

Expand Additional Considerations for mitigation of greenhouse gas emissions

Rename the heading for air quality as follows:

> "**Considerations for improving air quality <u>and reducing greenhouse gas emissions</u>**"

Expand the second paragraph in this section as follows:

> "Reduce emissions of greenhouse gases, ammonia, volatile organic compounds, particulate matter and odor, by adding other NRCS CPSs Anaerobic Digester (Code 366), Roofs and Covers (Code 367), Waste Treatment (Code 629), <u>Waste Separation Facility (code 632)</u>, Amendments for Treatment of Agricultural Waste (Code 591), Composting Facility (Code 317), and Air Filtration and Scrubbing (Code 371) to the waste management system. <u>Liquid-solid separation of livestock waste streams (CPS 632) can substantially reduce methane emissions from liquid waste storage facilities. Co-composting of solid waste with organic carbon materials (e.g., wood chips, straw) further reduces greenhouse gas emissions and odors, stabilizes nutrients against leaching, and yields a valuable soil amendment. Implement Composting Facility (CPS 317) *and the Additional Criteria for Composters and Composting for Animal Mortality Facility (CPS 316) to maintain aerobic conditions and minimize GHG emissions</u>.*"

* * If and when a new Conservation Practice Standard for Composting is issued (with criteria for the composting process and for compost utilization), replace this phrase with citation of the new Standard. Until then, we recommend using the Additional Criteria for Composters and Composting for routine animal mortality management (CPS 316).

Under Considerations for Siting, add the following paragraph regarding climate change:

> "Climate change has led to increased frequency and severity of floods in many parts of the US, so that future 100-year floods will likely rise significantly higher than the historical 100-year floodplain. In selecting a site for a waste storage facility, consider locating the facility above the elevation that has become the de facto 100-year floodplain in the 21st century."

316 Animal Mortality Facility

Animal mortality is often an unavoidable aspect of raising livestock. Proper disposal of animal carcasses is an important way to conserve soil and water resources and reduce greenhouse gas emissions from decomposition.

We recommend that CPS 316 only qualify for IRA Climate Smart funding if it is used for composting animal carcasses. Other disposal methods are more energy intensive and result in a waste product that can still emit heavily. Additional guidance from NRCS on composting in an organic system would be a helpful additional step to maximize carbon sequestration and reduce emissions while reducing synthetic inputs that themselves have high emissions.

367 Roofs and Covers

Roofs and Covers is often used as a facilitating practice for other structural practices throughout the NRCS handbook. ***We recommend that it only qualify for IRA Climate Smart funding if it is used to facilitate composting***. When used for practices such as anaerobic digesters, it can facilitate an increase in emissions. Recent analysis shows that building anaerobic digesters can have the effect of increasing herd sizes, and when the vast majority of emissions come from the animals themselves and not their manure, this is counter to the United States' goals of reducing methane emissions. Additionally, even with covers, manure lagoons can emit nitrous oxide, which is a more potent greenhouse gas than methane.

Roofs and covers are important nodes in the biogas supply chain, which has been shown to be rife with leaks, hindering any potential emission reduction.[i]

592 Feed Management

Feed management is often cited as a technical solution to greenhouse gas emissions such as methane from livestock. While there are some studies that exist pointing to a potential reduction of methane at a small scale in a controlled environment, there is not strong evidence to show feed management working for the average farmer or at a large scale.[ii]

Better support for farmers who wish to raise livestock on pasture will be needed to restore natural nutrient exchange between livestock and the soil while reducing methane. Right-sizing herds for each operation while encouraging direct animal application of manure onto pasture can be a good alternative to a livestock operation reliant on feed management to reduce emissions.

632 Waste Separation Facility

This practice is often used in facilitation with practices such as CPS 366, Anaerobic Digester, which, as mentioned above, can lead to additional emissions throughout the waste and biogas supply chain. ***We recommend that this practice only qualify for IRA Climate Smart funding if it is used to facilitate composting***. A more cost-effective, direct, and natural approach to waste would be to, where possible, encourage pasture and rangeland grazing for livestock. In climates and operations where seasonal confinement is necessary, we encourage a focus on technical assistance for operators to compost waste and reuse it in other parts of their operation. We also encourage targeting funds and technical assistance toward small-scale operations.

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[i] Alvarez, R. A., Zavala-Araiza, D., Lyon, D. R., Allen, D. T., Barkley, Z. R., Brandt, A. R., Davis, K. J., Herndon, S. C., Jacob, D. J., Karion, A., Kort, E. A., Lamb, B. K., Lauvaux, T., Maasakkers, J. D., Marchese, A. J., Omara, M., Pacala, S. W., Peischl, J., Robinson, A. L., … Hamburg, S. P. "Assessment of methane emissions from the U.S. oil and gas supply chain." *Science*, 361, no. 6398 (June 2018): 186–188. https://doi.org/10.1126/ science.aar7204.

[ii] Palangi, V. and Lackner, M. "Management of Enteric Methane Emissions in Ruminants Using Additives: A Review." *Animals (Basel)* 12, no. 24 (December 2022): 3452. https://doi.org/10.3390/ani12243452.