CDFA Alternative Manure Management Program (AMMP)
New Management Practices Proposals
Public Comments on Recommendations and Final Determination

Proposals to suggest new manure management practices for potential inclusion under the AMMP were accepted between July 6, 2020 and September 4, 2020. Initial recommendations following review were open for public comment. Response to comments and final determination on practice inclusion under the AMMP are listed in the order proposals were originally received.

	Proposed Practice and Submitting Individual or Entity July 6-Sept 4, 2020	Recommendation Based on Initial Review Feb 1, 2021	Additional Considerations and Explanation for Initial Recommendation	Public Comments Received* Feb 1-Mar 1, 2021	CDFA Response and Final Determination July 13, 2021
1	Storage acidification (BioCover A/S) - use of sulfuric acid to control pH value of manure slurry.	Not recommended for inclusion under the AMMP.	• Concerns on the practice include: o Viability and scalability to California dairies given the large amount of concentrated acid that may be needed for California style dairies and manure storage (practice developed in Denmark for smaller dairies with solid/slurry style manure storage in tanks, and accessibility of equipment or service contracts needed for acid handling and application. o Unknown environmental impacts related to storage and disposal of acid or acidified material, and land application of acidified manure or wastewater. o Potential risks to worker health and safety with exposure to and handling of potentially large volumes of concentrated sulfuric acid. • The acid is a consumable item with recurring expense.	1. In response to concerns on viability, scalability, accessibility: • 227 million m3 sulfuric acid is produced in the world each year, and is the number one chemical bulk commodity. If all 1500 California lagoons with 50,000 m3 (average) slurry were acidified with 2 liters per m3, it would be 375,000 m3 acid, or 0.16% of the total production. Price of sulfuric acid is mostly stable and transportation/storage pathways historically established. • For a 50,000 m3 California lagoon, estimated needs: 100 m3 of acid, 7 acid tanker loads per season, 5-7 hours for unloading time; distribution of pH in lagoon regardless of size due to chemical equilibrium in pH and ammonia/ammonium. • Addition of acidification is proposed as a service operation part of BioCover franchise. It would include designed semi-tanker truck; training and instruction by BioCover. No specialty equipment needed. BioCover also will fit and manage the pH monitoring, and would intend to produce a Methodology to be able to issue carbon credits based on this data. • Acidification technology can be used where digester technology not a good idea, and can also be used after digestion process to limit ammonia impact. • Would be a societal investment by reducing ammonia emission, smog, and negative health outcomes from PM 2.5. • Denmark and Germany have as large farms as California, just not as many - size of Danish agriculture should not affect viability, scalability, and suitability of acidification technology. 2. In response to unknown environmental impacts from storage and disposal of acid/acidified material: • Technology has been scrutinized by European scientific community for 15 years; more than 300 papers submitted, including on impacts related to storage, disposal of acid or acidified material, and application of acidified manure. US lacks research on this due to no regulation on ammonia emission. Research also focuses on ammonia emission, not methane emission. However, there is no difference in the effect between acidification for ammonia emission or methane emission - both effects achieved. • Submitted reference materials contain over 200 articles, covering environmental impact of acidification. EU-BAT standard may not be valid in US, but documentation behind it should be considered. 3. In response to potential risks to worker health and safety: • Methane and ammonia emission is killing every day due to air pollution. Acidification is estimated to reduce PM 2.5 emission by 50%. • Sulfuric acid is the world's number one bulk chemical product - it is able to be handled in a responsible manner. BioCover uses only industry approved components, complies with regulations, has a record of 12 years without an accident. 4. In response to acid being a consumable item with recurring expense: • Sulfuric acid is a fertilizer that replaces the use of mineral fertilizer (acid is injected into slurry, Sulfur turned into plant available Sulfate, ammonia to plant available nitrogen). • Carbon credit sales not yet a reality, but would improve the economy of the technology; that is a long-term solution, current short-term solution is subsidy by AMMP.	CDFA appreciates the comments and additional data provided by the submitter. A pilot project is necessary to establish the technical and economic feasibility of operations, including design of semi-tanker trucks, training and service contracts. Commercial deployment of this technology will remain a concern in absence of such a California-specific feasibility analysis. While CDFA appreciates EU perspective on sulfuric acid as a commonly/safely used bulk chemical, California dairy-specific safety concerns have not been addressed as California dairies are currently not equipped to handle large amounts of acidified manure. Given the methodology and pathway for sale of carbon credits does not yet exist, it cannot be taken into account for assessing economic viability at this time. The recurring expense of the acid as an additive is a persisting potential concern. An environmental analysis of this practice from a regulatory perspective from relevant state and local agencies is needed before it can be incentivized through state funding. **Due to reasons cited above, previous recommendation to not include the practice under the AMMP remains unchanged.**
				Concur with decision to not recommend inclusion of this practice.	Thank you for the comments.
				As this technology is used when the manure is applied to the field, not in the long term storage it would not have significant impact on the GHG production from manure storage which is generally considered the most significant source of emissions.	
2	Biomineral fertilizer (Plant Nutrition Technologies Inc.) - application of recycled, nutrient rich soil fertilizer to improve farmland health and carbon sequestration.	Not recommended for inclusion under the AMMP.	•GHG reduction by carbon sequestration through land application of fertilizer is beyond the scope of the AMMP project boundary and GHG reduction calculations, which focus primarily on methane reduction. •The submitted proposal indicated that the technology is in pilot stage and not commercially available. •The proposal lacked an estimation of GHG reductions.	Concur with decision to not recommend inclusion of this practice.	Thank you for the comments.
				Soil health is recognized as an important part of the environment, but because this technology is applied to the field it would not have significant impact on the GHG production from manure storage.	**Previous recommendation unchanged.**

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3	Flocculation Enhanced High-Rate Solid-Liquid Separation (Figure 8 Environmental) - use of polymer flocculation to increase separation and removal of fine manure solids beyond ability of mechanical separation.	Recommended for inclusion under the program with additional data requested as part of grant application. Practice must be proposed in conjunction with solid separation. Applicants would be required to include information on the following as attachments: a. Type of flocculant/polymer proposed must have already been through a public process (for example, CEQA) for potential environmental impact to various media, including soil quality, water quality, air emissions, etc. b. Efficacy of volatile solid removal for GHG reductions must be quantitatively well-documented. c. Since flocculants can be used differently from original proposal, for instance, intermittently used, project must include how ongoing permanent GHG reductions will be achieved for the life of the project. d. Ongoing cost considerations past the project term and commitment for sustained purchase and use of flocculant/polymer to achieve anticipated GHG reductions must be addressed as part of the Long-Term Operations and Maintenance Plan.	•Flocculant/polymer is a consumable item with recurring expense. If not continued, the project would not achieve GHG emission reductions beyond a typical solid separation which is already eligible under the AMMP and is a lower cost system. Therefore, additional requirements are proposed to ensure long-term operation of this practice.	• Supports inclusion of this type of technology, as it will reduce GHG generation on dairies, and help with manure management, water conservation, nutrient management, and odor management. • For proposed required information (a.), is polymer choice and public process to be declared during the application for scoring, or will it be a requirement prior to funding after project scored and notified it will receive a grant? Recommend recognition of the National Sanitation Foundation as a public process that evaluates polymers for safety. • For proposed required information (b.), will a separate volatile solids (VS) removal rate on the QM tool be used, and what criteria will CDFA be using? Will daily/weekly/monthly VS removal record keeping be required while in operation during AMMP funding program? Recommend recognition of a minimum VS separation value as found in the USDA NRCS Part 637 Environmental Engineering National Engineering Handbook (85% reduction rate for "inclined screen with flocculant"); recommend CDFA require systems to have data analytics abilities and packages for easy documentation of VS removal to ensure GHG reduction. • For proposed required information (c.), recommend requiring all funded projects document how ongoing permanent GHG reductions will be achieved, rather than singling out enhanced solid-liquid separation technology. • For proposed required information (d.), recommend requiring a Long-Term Operations and Maintenance Plan for all funded projects, rather than singling out enhanced solid-liquid separation technology.	Thank you for the comments in support. CDFA AMMP grants may not be able to support cost of flocculant/media beyond grant agreement term due to funding liquidation deadlines determined by the Legislature. Incentivizing the cost of enhanced solid-liquid separation system when coarse (primary) separator exists on the dairy will be taken into consideration for development of future Request for Grant Applications and QM. CDFA will provide guidance on all information needed at time of application submission, including quantification methodology, in the grant solicitation documents, taking into consideration additional information provided in public comments. **Previous recommendation remains unchanged.**
				• Supports inclusion of technology and practices involving use of flocculant-assisted separation of manure solids and liquids ("advanced SLS"). • Advanced SLS can greatly reduce methane emissions on dairies, divert a large portion of volatile solids away from anaerobic lagoons, reduce amount of nitrogen stored in lagoons, and provide significant environmental benefits. • Given the systems rely on consumable polymer, recommend allowing use of AMMP funding to offset the cost of both equipment and consumable polymer to ensure longer-term use. If recent recommendations of the Offset Protocols Task Force are adopted by CARB, which include allowing AMMP projects to qualify to produce carbon offset credits, revenue from sale of such offset credits could also help ensure longer term purchase of polymer flocculants. • This technology could become a partner to the anaerobic digester program in California. For dairies that need to prioritize improved nutrient management systems above installing a digester, or that are too small to achieve the economy of scale to support a digester, this technology could address nitrogen surplus and methane emissions simultaneously.	
				• Flocculation Enhanced High-Rate Solid-Liquid Separation represents an opportunity to significantly reduce volatile solids in long term storage, and GHG emissions. The solids removed would need to be managed properly so they do not go anaerobic, but this applies to many technologies. • Most systems require removal of coarse solids. If a coarse solids separation system is not present, one should be required; if one is already in place, projects that add a Flocculation Enhanced High-Rate Solid-Liquid Separation system will reduce the volatile solids going to storage and GHG emissions, and should also be included in the AMMP.	
4	Low emission slurry spreading (Vogelsang USA) - advanced methods (shallow disc injection, trailing shoe, dribble bars) for spreading manure on land.	Not recommended for inclusion under the AMMP.	•The practice is beyond the scope of the AMMP project boundary as land application of manure is not included in the AMMP GHG calculations. •Primary focus of the practice is on ammonia reduction rather than methane. •Practice may be potentially constrained by nutrient application frequency and plant uptake, which are dependent on allowable nutrient application limits set in the dairy's nutrient management and waste discharge plans.	Concur with decision to not recommend inclusion of this practice.	Thank you for the comments. **Previous recommendation remains unchanged.**
				As this technology is used when manure applied to the field, it would not have significant impact on the GHG production from manure storage	

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5	Static Floating Media Separation as a Tool for Concentrating Liquid Manure Mixtures (AST) - use of floating media filters to increase separation and removal of fine manure solids beyond ability of mechanical separation.	Recommended for inclusion under the program with additional data requested as part of grant application. Practice must be proposed in conjunction with solid separation. Applicants would be required to include information on the following as attachments: a. Type of flocculant/polymer proposed must have already been through a public process (for example, CEQA) for potential environmental impact to various media, including soil quality, water quality, air emissions, etc. b. Efficacy of volatile solid removal for GHG reductions must be quantitatively well-documented. c. Since flocculants can be used differently from original proposal, for instance, intermittently used, project must include how ongoing permanent GHG reductions will be achieved for the life of the project. d. Ongoing cost considerations past the project term and commitment for sustained purchase and use of flocculant/polymer to achieve anticipated GHG reductions must be addressed as part of the Long-Term Operations and Maintenance Plan.	•Flocculant/media may be a recurring expense. If not continued, the project would not achieve GHG emission reductions beyond a typical solid separation which is already eligible under the AMMP and is a lower cost system. Therefore, additional requirements are proposed to ensure long-term operation of this practice.	• Supports inclusion of technology and practices involving use of flocculant-assisted separation of manure solids and liquids ("advanced SLS"). • Advanced SLS can greatly reduce methane emissions on dairies, divert a large portion of volatile solids away from anaerobic lagoons, reduce amount of nitrogen stored in lagoons, and provide significant environmental benefits. • Given the systems rely on consumable polymer, recommend allowing use of AMMP funding to offset the cost of both equipment and consumable polymer to ensure longer-term use. If recent recommendations of the Offset Protocols Task Force are adopted by CARB, which include allowing AMMP projects to qualify to produce carbon offset credits, revenue from sale of such offset credits could also help ensure longer term purchase of polymer flocculants. • This technology could become a partner to the anaerobic digester program in California. For dairies that need to prioritize improved nutrient management systems above installing a digester, or that are too small to achieve the economy of scale to support a digester, this technology could address nitrogen surplus and methane emissions simultaneously. • Any Polymer Solid-Liquid Separation system represents an opportunity to significantly reduce volatile solids in long term storage, and GHG emissions. The solids removed would need to be managed properly so they do not go anaerobic, but this applies to many technologies. • This system requires removal of coarse solids. If a coarse solids separation system is not present, one should be required; if one is already in place, projects that add a Polymer Solid-Liquid Separation will reduce the volatile solids going to storage and GHG emissions, and should also be included in the AMMP.	Thank you for the comments in support. CDFA AMMP grants may not be able to support cost of flocculant/media beyond grant agreement term due to funding liquidation deadlines determined by the Legislature. Incentivizing the cost of enhanced solid-liquid separation system when coarse (primary) separator exists on the dairy will be taken into consideration for development of future Request for Grant Applications and QM. **Previous recommendation remains unchanged.**
6	Improved grazing incentives (CalCAN) - prescribed grazing as a method of animal and forage management done for a variety of outcomes, including improved herd and land management that can result in decreased greenhouse gas emissions.	Not recommended for inclusion under the AMMP.	•GHG reduction by soil carbon sequestration is beyond the scope of the AMMP project boundary and GHG reduction calculations, which focus primarily on methane reduction. •Reduction in enteric emissions claimed but not substantiated by published research. •Where Grazing Management Plan involves increased pasture time for animals, it may fit under the existing “pasture-based management” category within the AMMP. •Prescribed Grazing is already an eligible practice under the Healthy Soils Program.	Concur with decision to not recommend inclusion of this practice.	Thank you for the comments. **Previous recommendation remains unchanged.**
7	Vermifiltration (BioFiltro USA, Inc) - waste management practice that relies on use of worms to treat liquid organic wastes.	Recommended for inclusion only in conjunction with an existing eligible methane reduction practice such as solid separation.	•Recommendation is based on methane reductions achieved largely through solid separation. The vermifiltration process reduces nitrogen, however, published scientific literature does not demonstrate quantifiable methane reductions through this practice in absence of an additional system such as a solid separator. Nitrogen reduction is an added desirable benefit, which is already eligible as nutrient management technology under the AMMP (2020 AMMP Request for Grant Applications, Project Technology, page 10), with nutrient management and removal evaluated under Environmental Co-Benefits (2020 AMMP Request for Grant Applications, Appendix E: Detailed Scoring Criteria, page 32).	• Vermifilter itself provides solid separation by trapping dissolved and suspended organic and inorganic solids from wastewater, which are then used by microorganisms and earthworms; this reduces nitrogen as well as volatile solids (VS), and makes methane reductions possible; the vermifilter as a solid separator had higher efficiency than the mechanical separators eligible under AMMP. • Vermifilter's reduced methane emissions result from both the vermifilter treatment due to aerobic conditions and from lower VS going to long term storage, independent and separate from upstream equipment or mechanical separation - supported by Fanelli Dairy and Royal Dairy data testing VS removal by comparing concentration entering and exiting vermifilter only, regardless of upstream separation in place at these sites; technology's independent solid separation ability in other industries and wastewater treatment supported in literature; further evidence from current certification process of carbon credits of a dairy vermifiltration project. Supports CDFA's recommendation for inclusion of vermiculture; this technology, combined with pre-lagoon solid-liquid separation, reduces methane and provides innovative ways to manage nitrogen by denitrifying manure liquids and creating valuable byproducts. • This technology represents an opportunity to significantly reduce the volatile solids in long term storage, and GHG emissions, by removing not only fine solids (such as via flocculation), but also dissolved volatile solids in the stream. • This system requires removal of coarse solids. If a coarse solids separation system is not present, one should be required; if one is already in place, projects that add Vermifiltration will reduce the volatile solids going to storage and GHG emissions even more than a polymer assisted system, and should also be included in the AMMP.	Thank you for the comments. CDFA reviewed the clarification provided in the public comment. Primary coarse solid separator is still deemed necessary by CDFA for vermifiltration system to work efficiently based on original submitted proposal and available research. CDFA will take into consideration the vermifiltration system's potential for removing additional volatile solids as secondary separation during QM development with CARB. Incentivizing the cost of enhanced solid-liquid separation system when coarse (primary) separator exists on the dairy will be taken into consideration for development of future Request for Grant Applications and QM. **The previous recommendation that the technology will be included under the AMMP, but must be in conjunction with solid separation remains unchanged.**
8	Nitrogen cracker (JOZ USA) - extracts nitrogen (ammonia) by evaporation filtration and processes to mineral form/fertilizer.	Not recommended for inclusion under the AMMP.	•Primary focus of the practice is ammonia reduction rather than methane. •The mechanism of the technology, energy inputs and information regarding potential pollutants generated as a result of this practice were not included in the proposal and not available in scientific literature. •Methane reduction is achieved only through flaring. Methane flaring is not in alignment with the goals of CDFA’s Dairy Methane Reduction Programs. Beneficial use of methane rather than flaring is encouraged in the California Short-Lived Climate Pollutant reduction strategy.	Concur with decision to not recommend inclusion of this practice.	Thank you for the comments. **Previous recommendation remains unchanged.**

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9	Fine Solids Flocculation Separation System (Trident Processes LLC) - use of polymer flocculation to increase separation and removal of fine manure solids beyond ability of mechanical separation.	Recommended for inclusion under the program with additional data requested as part of grant application. Practice must be proposed in conjunction with solid separation. Applicants would be required to include information on the following as attachments: a. Type of flocculant/polymer proposed must have already been through a public process (for example, CEQA) for potential environmental impact to various media, including soil quality, water quality, air emissions, etc. b. Efficacy of volatile solid removal for GHG reductions must be quantitatively well-documented. c. Since flocculants can be used differently from original proposal, for instance, intermittently used, project must include how ongoing permanent GHG reductions will be achieved for the life of the project. d. Ongoing cost considerations past the project term and commitment for sustained purchase and use of flocculant/polymer to achieve anticipated GHG reductions must be addressed as part of the Long-Term Operations and Maintenance Plan.	•Flocculant/polymer is a consumable item with recurring expense. If not continued, the project would not achieve GHG emission reductions beyond a typical solid separation which is already eligible under the AMMP and is a lower cost system. Therefore, additional requirements are proposed to ensure long-term operation of this practice.	• Supports inclusion of technology and practices involving use of flocculant-assisted separation of manure solids and liquids ("advanced SLS"). • Advanced SLS can greatly reduce methane emissions on dairies, divert a large portion of volatile solids away from anaerobic lagoons, reduce amount of nitrogen stored in lagoons, and provide significant environmental benefits. • Given the systems rely on consumable polymer, recommend allowing use of AMMP funding to offset the cost of both equipment and consumable polymer to ensure longer-term use. If recent recommendations of the Offset Protocols Task Force are adopted by CARB, which include allowing AMMP projects to qualify to produce carbon offset credits, revenue from sale of such offset credits could also help ensure longer term purchase of polymer flocculants. • This technology could become a partner to the anaerobic digester program in California. For dairies that need to prioritize improved nutrient management systems above installing a digester, or that are too small to achieve the economy of scale to support a digester, this technology could address nitrogen surplus and methane emissions simultaneously. • Any Polymer Solid-Liquid Separation system represents an opportunity to significantly reduce volatile solids in long term storage, and GHG emissions. The solids removed would need to be managed properly so they do not go anaerobic, but this applies to many technologies. • This system requires removal of coarse solids. If a coarse solids separation system is not present, one should be required; if one is already in place, projects that add a Polymer Solid-Liquid Separation will reduce the volatile solids going to storage and GHG emissions, and should also be included in the AMMP.	Thank you for the comments in support. CDFA AMMP grants may not be able to support cost of flocculant/media beyond grant agreement term due to funding liquidation deadlines determined by the Legislature. Incentivizing the cost of enhanced solid-liquid separation system when coarse (primary) separator exists on the dairy will be taken into consideration for development of future Request for Grant Applications and QM. **Previous recommendation remains unchanged.**
10	Polymer assisted solid-liquid separation (Livestock Water Recycling) - use of polymer flocculation to increase separation and removal of fine manure solids beyond ability of mechanical separation.	Recommended for inclusion under the program with additional data requested as part of grant application. Practice must be proposed in conjunction with solid separation. Applicants would be required to include information on the following as attachments: a. Type of flocculant/polymer proposed must have already been through a public process (for example, CEQA) for potential environmental impact to various media, including soil quality, water quality, air emissions, etc. b. Efficacy of volatile solid removal for GHG reductions must be quantitatively well-documented. c. Since flocculants can be used differently from original proposal, for instance, intermittently used, project must include how ongoing permanent GHG reductions will be achieved for the life of the project. d. Ongoing cost considerations past the project term and commitment for sustained purchase and use of flocculant/polymer to achieve anticipated GHG reductions must be addressed as part of the Long-Term Operations and Maintenance Plan.	•Flocculant/polymer is a consumable item with recurring expense. If not continued, the project would not achieve GHG emission reductions beyond a typical solid separation which is already eligible under the AMMP and is a lower cost system. Therefore, additional requirements are proposed to ensure long-term operation of this practice.	• Supports inclusion of this type of technology, as it will reduce GHG generation on dairies, and help with manure management, water conservation, nutrient management, and odor management. • For proposed required information (a.), is polymer choice and public process to be declared during the application for scoring, or will it be a requirement prior to funding after project scored and notified it will receive a grant? Recommend inclusion of state's Department of Natural Resources (DNR) approval in AMMP requirements for use of polymer in manure treatment for solids that will be land applied. • For proposed required information (b.), will a separate volatile solids (VS) removal rate on the QM tool be used, and what criteria will CDFA be using? Will daily/weekly/monthly VS removal record keeping be required while in operation during AMMP funding program? Recommend recognition of a minimum VS separation value as found in the USDA NRCS Part 637 Environmental Engineering National Engineering Handbook (85% reduction rate for "inclined screen with flocculant"); recommend CDFA require systems to have data analytics abilities and packages for easy documentation of VS removal to ensure GHG reduction. • For proposed required information (c.), recommend requiring all funded projects document how ongoing permanent GHG reductions will be achieved, rather than singling out enhanced solid-liquid separation technology. • For proposed required information (d.), recommend requiring a Long-Term Operations and Maintenance Plan for all funded projects, rather than singling out enhanced solid-liquid separation technology. • Recommend requirement of automated sensor-controlled measurement of polymer dosing and solids levels throughout the system operation for reliable, accurate batch preparation, metering of solutions and safety measures; also recommend deployment of Machine Learning/IoT platforms for further improved dosing accuracy that can take into consideration real-time surrounding environmental conditions. • Supports inclusion of technology and practices involving use of flocculant-assisted separation of manure solids and liquids ("advanced SLS"). • Advanced SLS can greatly reduce methane emissions on dairies, divert a large portion of volatile solids away from anaerobic lagoons, reduce amount of nitrogen stored in lagoons, and provide significant environmental benefits. • Given the systems rely on consumable polymer, recommend allowing use of AMMP funding to offset the cost of both equipment and consumable polymer to ensure longer-term use. If recent recommendations of the Offset Protocols Task Force are adopted by CARB, which include allowing AMMP projects to qualify to produce carbon offset credits, revenue from sale of such offset credits could also help ensure longer term purchase of polymer flocculants. • This technology could become a partner to the anaerobic digester program in California. For dairies that need to prioritize improved nutrient management systems above installing a digester, or that are too small to achieve the economy of scale to support a digester, this technology could address nitrogen surplus and methane emissions simultaneously. • Any Polymer Solid-Liquid Separation system represents an opportunity to significantly reduce volatile solids in long term storage, and GHG emissions. The solids removed would need to be managed properly so they do not go anaerobic, but this applies to many technologies. • This system requires removal of coarse solids. If a coarse solids separation system is not present, one should be required; if one is already in place, projects that add a Polymer Solid-Liquid Separation will reduce the volatile solids going to storage and GHG emissions, and should also be included in the AMMP.	Thank you for the comments in support. CDFA AMMP grants may not be able to support cost of flocculant/media beyond grant agreement term due to funding liquidation deadlines determined by the Legislature. Incentivizing the cost of enhanced solid-liquid separation system when coarse (primary) separator exists on the dairy will be taken into consideration for development of future Request for Grant Applications and QM. CDFA will provide guidance on all information needed at time of application submission, including quantification methodology, in the grant solicitation documents, taking into consideration additional information provided in public comments. **Previous recommendation remains unchanged.**

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11	Composting with biochar (UCD, Pacific Biochar, USDA ARS) - co-composting animal manure with biochar prior to land application.	Not recommended for inclusion under the AMMP.	•GHG reduction by soil carbon sequestration and biochar land application is beyond the scope of the AMMP project boundary and GHG reduction calculations, which focus primarily on methane reduction. •Proposal for biochar application to soil has also been submitted for consideration under the Healthy Soils Program and is currently being evaluated.	Concur with decision to not recommend inclusion of this practice. When properly managed and regularly turned, composting is an aerobic process that generates low GHG emissions. Adding biochar to a composting system shows promise for capturing and retaining ammonia in the compost.	Thank you for the comments. **Previous recommendation remains unchanged.**
12	Manure drying and pelleting systems for poultry manure (Petaluma Farms) - improved inclusion of options and GHG calculator use for poultry manure management.	Not recommended for inclusion separately under the AMMP.	Poultry as a livestock category is already eligible under the AMMP. The suggested type of manure treatment and/or storage (drying) may already be eligible under Program. CDFA will examine the existing Benefits Calculator Tool and Quantification Methodology with the California Air Resources Board to identify challenges and ways to ensure that eligible livestock categories are able to access the calculator.	Concur with decision to not recommend inclusion of this practice.	Thank you for your comments. **Previous recommendation remains unchanged.**
	N/A	N/A	N/A	Suggestion to integrate black soldier fly, vermicompost, fungi composting operation into manure management programs to increase revenue sources while minimizing the negatives associated with large waste piles.	CDFA appreciates this suggestion for innovative ways to manage manure. This practice may be outside of the AMMP project boundary and GHG reduction calculations.
	N/A	N/A	N/A	Important to stay open to inclusion of new technologies as practices and technology evolve and become available to further environmental goals. Also important to only include practices that will be effective on California dairies in a program with limited funding amounts. Appears CDFA has done a good job sifting through potential new practices and recommending those that are effective at reducing manure methane emissions and have secondary benefits for water quality and other issues.	Thank you for the comments supporting the request for proposals process and resulting recommendations.
	N/A	N/A	N/A	Supports CDFA efforts to expand eligible practices under AMMP, and encourages evaluating funding limit of $750,000 per project based on expanded practice list - propose scaling funding to be commensurate with the expected GHG reduction of the project.	Thank you for the comments supporting the request for proposals process. The suggestion for reviewing funding limit and potential for scaling will be evaluated during future Request for Grant Applications development.

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