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MEMORANDUM

TO: Vermont Climate Council Agriculture & Ecosystems Subcommittee
FROM: Ryan Patch, Water Quality Assistant Director, Vermont Agency of Agriculture, Food & Markets
DATE: December 16, 2021
SUBJECT: Agricultural Mitigation Funding Proposal Associated with the Initial VT CAP

Sections of the CAP considered in this proposal:
Section 11.4: Agricultural Pathways for Mitigation

Summary of Recommendations:

Total Funding Request: \$9,560,000 to be obligated by the close of Calendar Year 2024

	SFY 23	CY 24	Total Appropriation
Grand Total (\$ Million USD)	3.90	5.66	9.56

1. Agricultural GHG mitigation implementation

- a. Summary: Initial funding for agricultural mitigation strategies and actions outlined in the Initial Vermont Climate Action Plan (CAP) found in Section 11.4.
- b. Proposal: Leverage existing State of Vermont programs which provide a climate mitigation benefit by expanding funding for these programs.
- c. Funding: \$9.56 million for obligation by close of Calendar Year 2024.

Detail of Recommendations

Recommendation 1: Agricultural GHG mitigation implementation

Incentivize the adoption of new and emerging climate smart farming practices to meet state agricultural GHG mitigation goals.

- Description/rationale: Many farmers are interested in climate smart farming practices, and in using these practices are mitigating agricultural emissions of GHG, building resilience on their farms against extreme climate change related weather vents. Vermont should enhance existing programs that incentivize climate smart farming practices.
- Funding request: \$9.56 million for obligation by close of Calendar Year 2024

Whereas the 2016 EPA Overview of Clean Water State Revolving Fund Eligibilities includes the following Agricultural Best Management Practices as eligible practices on both cropland and Animal Feeding Operations (AFO), ARPA dollars can be argued to be eligible to be spent on the following project categories: Manure injection equipment; Manure spreaders; Water efficient irrigation equipment; Conservation tillage equipment; Windbreaks; Sediment control basins; Terraces; Diversions; Buffer and filter strips; Rip-rapping; Streambank stabilization; Chemical use reduction (e.g., chemical spray equipment and chemical storage containment structures); and



Livestock/milk house waste management systems; Manure containment structures; Vessel composters; Manure injection equipment; Well sealing and water diversions to avoid feedlots; Fencing/alternative water supply for animals to keep them out of water bodies. ARPA dollars have been recommended for appropriation to AAFM for these programs through the Clean Water Board budget development process.

The implementation of the above named BMPs is facilitated in the State of Vermont through clean water programs administered by the Vermont Agency of Agriculture, Food & Markets (AAFM). Where the CAP in Section 11.4 has provided a framework for how existing agricultural conservation programs that have a climate co-benefits can be quantified for GHG mitigation services, funding the following programs at the recommended levels will provide GHG mitigation services to the State of Vermont which – once fully quantified – will provide high impact, cost-effectiveness, leverage existing state, federal, and farmer efforts, as well as provide an approach towards GHG mitigation which is equitable¹ for the agricultural sector.

The following agricultural mitigation strategies and actions can leverage existing State of Vermont agricultural programs identified in the Climate Action Plan:

- a) Implement agronomic practices that reduce tillage and increase vegetative cover, e.g. no-till, cover crop.
- b) Expand Capital Equipment Assistance Program (CEAP) program to extend beyond water quality and incorporate climate change criteria.
- c) Implement grazing practices that increase vegetative cover and forage quality, e.g. rotational grazing.
- d) Implement agroforestry and silvopasture practices that integrate woody vegetation in agricultural production.
- e) Implement edge-of-field practices that increase herbaceous and woody vegetation, e.g. riparian forest buffer (e.g. CREP).
- f) Implement natural resource restoration practices that support climate mitigation and resilience, including river corridor easements, wetland restoration, and afforestation practices with consideration to agricultural land loss.
- g) Implement Nutrient Management and Amendments (e.g., biochar, compost) on cropland and grazing land.
- h) Implement methane capture and energy generation on farms, e.g., anaerobic digesters and covers.
- i) Research and implement into improved manure management and storage.
- j) Research and develop a climate feed management program, including both feed amendments (e.g., seaweed, biochar) and feed quality (e.g., forage quality) to reduce enteric methane emissions; while considering downstream impacts, sustainability and equity.

Proposed budget for ARPA-Timeline CAP implementation for agricultural GHG mitigation efforts:

Budget to Enhance Existing State Programs for Ag GHG Mitigation		Millions of USD		
<u>AAFM Program</u>	Recommendation Reference Number: CAP Section 11.4, Strategy 1, Action (a) - (j)	SFY 23	CY 24	Total Appropriation for SFY 23
FAP²	a. Agronomic	1	1	2
	c. Grazing Management			

¹ Excerpt: “Storing the carbon dioxide from negative emission technologies (NETs) [e.g. terrestrial carbon removal and sequestration – i.e. cover crop] has the same impact on the atmosphere and climate as simultaneously preventing an equal amount of carbon dioxide from being emitted. Recent analyses found that deploying NETs may be less expensive and less disruptive than reducing some emissions, such as a substantial portion of agricultural and land-use emissions and some transportation emissions.” National Academies of Sciences, Engineering, and Medicine 2019. Negative Emissions Technologies and Reliable Sequestration: A Research Agenda. Washington, DC: The National Academies Press. <https://doi.org/10.17226/25259>.

² Farm Agronomic Practices (FAP) Program [6 V.S.A. § 4832]



CEAP³	b. CEAP (capital eligible)	1	1	2
PSFW⁴	c. Grazing Implementation (capital eligible)	0.5	0.5	1
BMP⁵	e. CREP ⁶ (capital eligible)	0.25	1	1.25
	h. Methane Capture (capital eligible)			
Ag-CWIP⁷	d. Agroforestry	1	2	3
	f. AEM ⁸ (some options for capital)			
	g. Nutrient Management Plan implementation			
	i. Pilot Manure management			
	j. Pilot Climate feed management			
Staff Support	Administration: to administer and implement funding at AAFM - 1 FTE	0.15	0.16	0.31
	Total	3.90	5.66	9.56

³ Capital Equipment Assistance Program (CEAP) [6 V.S.A. § 4828]

⁴ Pasture and Surface Water Fencing Program (PSWF) [6 V.S.A § 4821]

⁵ Best Management Practices (BMP) Program [6 V.S.A. § 4821]

⁶ Conservation Reserve Enhancement Program (CREP) [6 V.S.A. § 4829]

⁷ Agriculture-Clean Water Initiative Program (Ag-CWIP) [6 V.S.A. § 4811(8)]

⁸ Agriculture Environmental Management (AEM) Program [6 V.S.A. § 4830]

