GWSA
Vermont Climate Council
Ag & Ecosystem Subcommittee
Ag Subtask Group #1:
Recommendations

Ryan Patch
Vermont Agency of Agriculture, Food and Markets
Vermont Climate Council Ag & Ecosystems Subcommittee Meeting
November 7, 2024

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1. **Reduce and sequester GHG emissions from ag and forestry practices (Pathways 10 & 23)**

H.688 Becomes: Global Warming Solutions Act

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BILL AS INTRODUCED H.688
2020 Page 5 of 24

(7) According to the Vermont Agency of Natural Resources, the conservation and restoration of Vermont forests, floodplains, and wetlands and the promotion of farming practices that sequester carbon are critical to achieve climate mitigation, adaptation, and resilience.

* * * Greenhouse Gas Reduction Requirements * * *

Sec. 3. 10 V.S.A. § 578 is amended to read:

§ 578. GREENHOUSE GAS REDUCTION ~~GOALS~~ REQUIREMENTS

(a) ~~General goal of greenhouse~~ Greenhouse gas reduction requirements. ~~It is the goal of the State to~~ Vermont shall reduce emissions of greenhouse gases from within the geographical boundaries of the State and those emissions outside the boundaries of the State that are caused by the use of energy in

VT LEG #350685 v.1

No. 153 Page 4 of 25
2020

Vermont ~~in order to make an appropriate contribution to achieving the regional goals of reducing emissions of greenhouse gases from the 1990 baseline,~~ as measured and inventoried pursuant to section 582 of this title, by:

(1) ~~25~~ not less than 26 percent from 2005 greenhouse gas emissions by January 1, ~~2012~~ 2025 pursuant to the State's membership in the United States Climate Alliance and commitment to implement policies to achieve the objectives of the 2016 Paris Agreement;

(2) ~~50~~ not less than 40 percent from 1990 greenhouse gas emissions by January 1, ~~2028~~ 2030 pursuant to the State's 2016 Comprehensive Energy Plan; and

(3) ~~if practicable using reasonable efforts, 75~~ not less than 80 percent from 1990 greenhouse gas emissions by January 1, 2050 pursuant to the State's 2016 Comprehensive Energy Plan.

* * *

Source: https://legislature.vermont.gov/Documents/2020/Docs/BILLS/H-0688/H-0688%20As%20Introduced.

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(4) Agriculture and Ecosystems Subcommittee. This subcommittee shall focus on the role Vermont's natural and working lands play in carbon sequestration and storage, climate adaptation, and ecosystem and community resilience. This subcommittee will seek to understand current initiatives in the agricultural and forestry sectors and the businesses that depend on them and to develop actions and policies that restore wetlands; increase carbon stored on agricultural and forest land and in forest products; and support healthy agricultural soils and local food systems.

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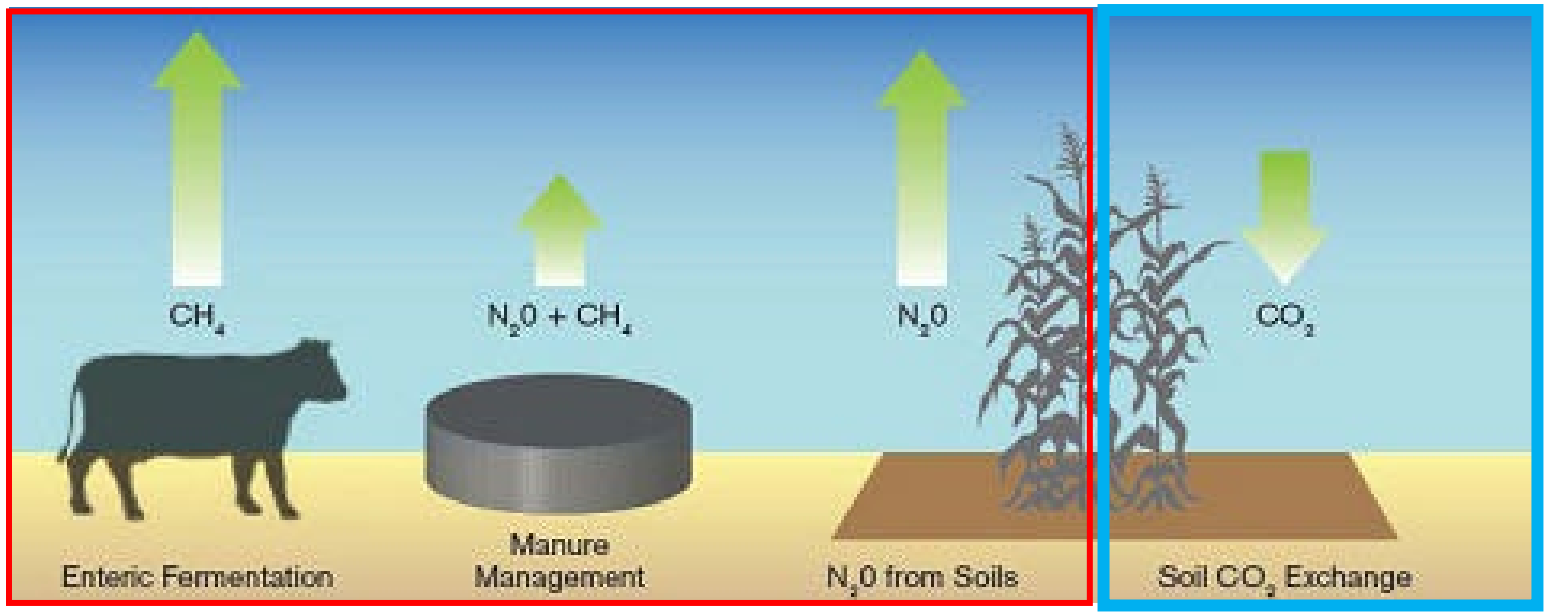
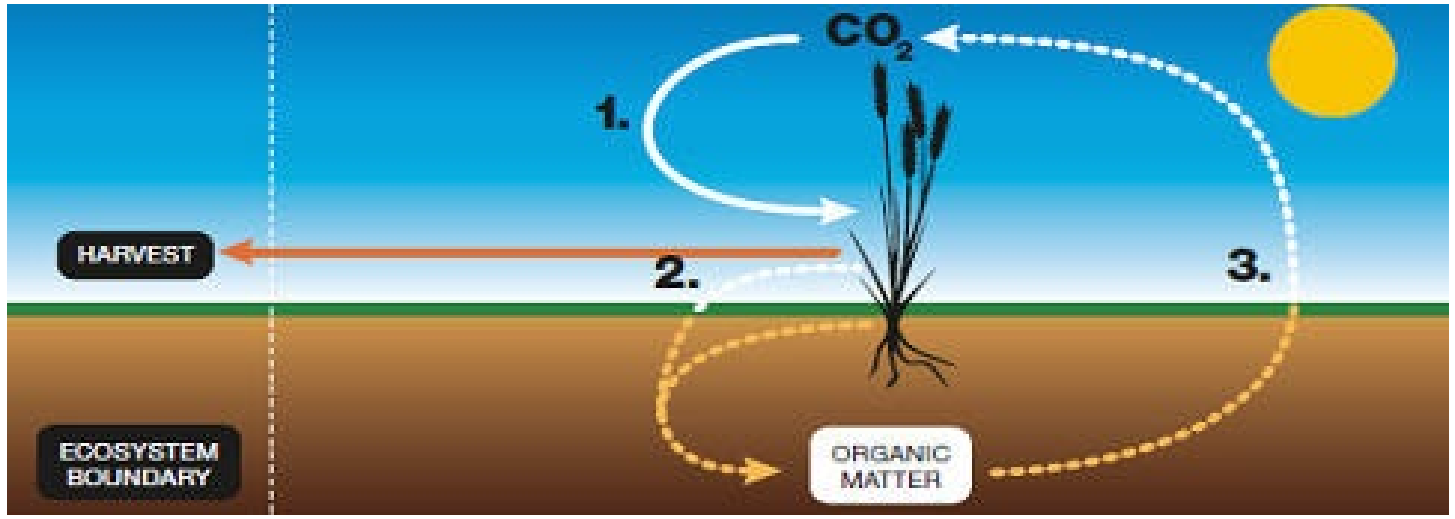
GHG Emissions & Sequestration



Carbon Cycle



Source: https://www.agr.gc.ca/eng/agriculture-and-the-environment/agricultural-practices/climate-change-and-agriculture/greenhouse-gases-and-agriculture/?id=1329321969842

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GHG Emissions & Sequestration

Vermont GHG Emission Inventory

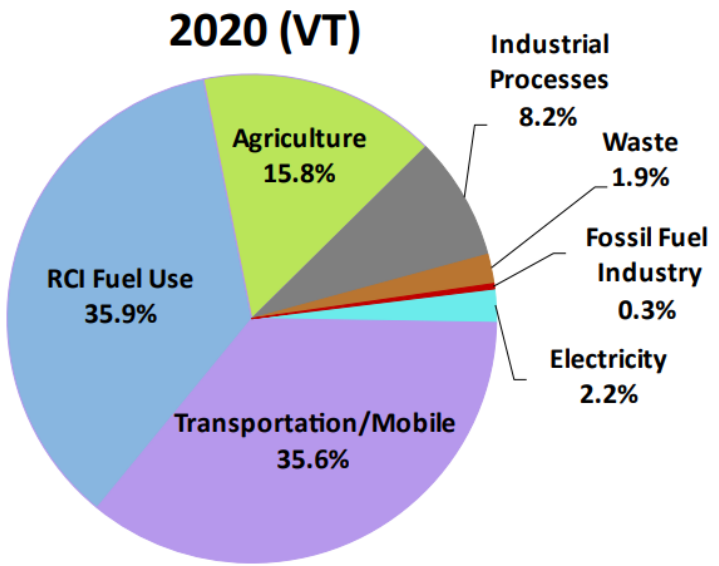

Figure 2: Vermont GHG percent contributions by sector.

Source: https://www.agr.gc.ca/eng/agriculture-and-the-environment/agricultural-practices/climate-change-and-agriculture/greenhouse-gases-and-agriculture/?id=1329321969842
Source: https://outside.vermont.gov/agency/anr/climatecouncil/Shared%20Documents/_Vermont_Greenhouse_Gas_Emissions_Inventory_Update_1990-2020_Final.pdf

Agriculture emits and sequesters from the same unit of land

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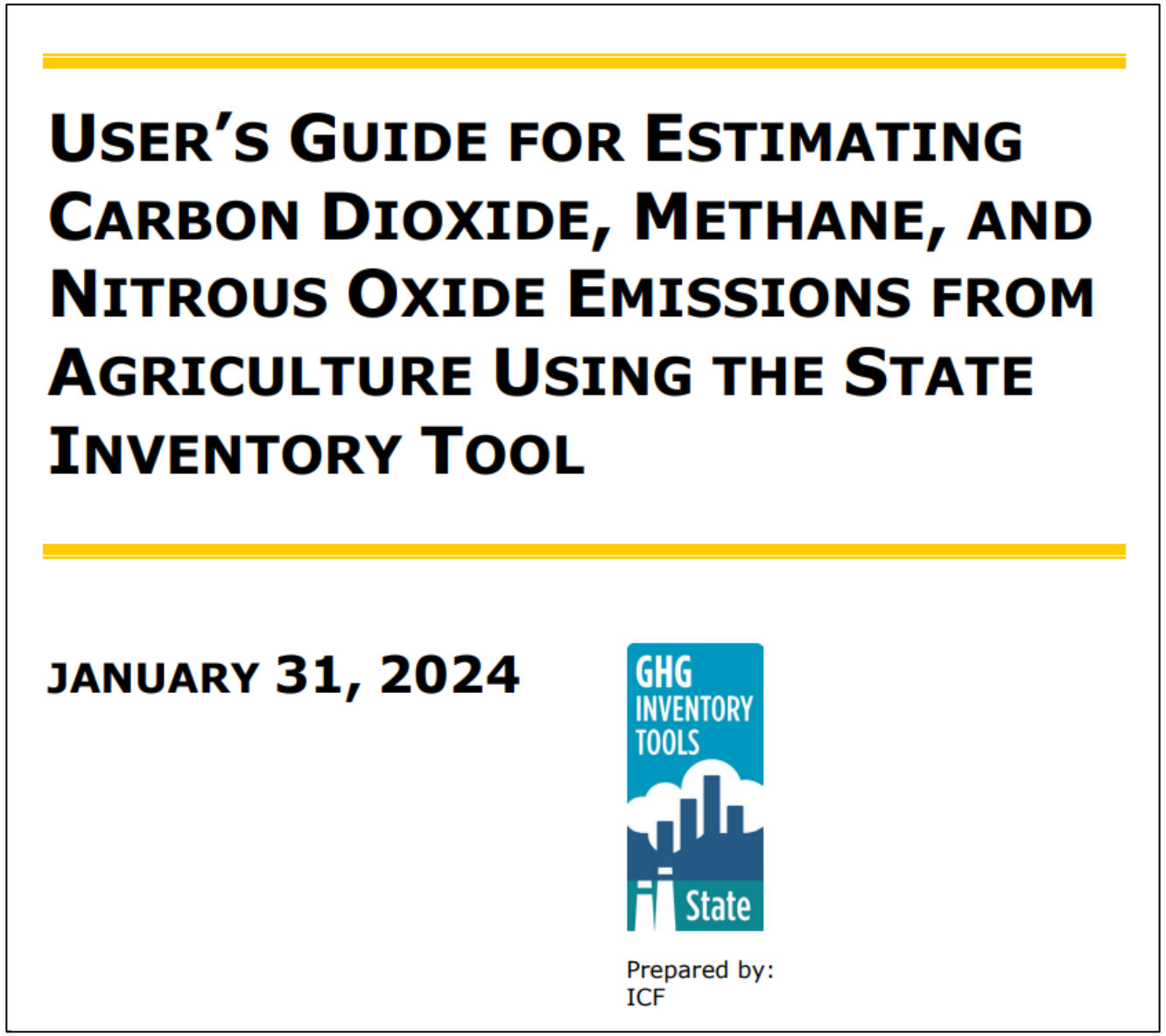

USER'S GUIDE FOR ESTIMATING CARBON DIOXIDE, METHANE, AND NITROUS OXIDE EMISSIONS FROM AGRICULTURE USING THE STATE INVENTORY TOOL

JANUARY 31, 2024

GHG INVENTORY TOOLS
State

Prepared by:
ICF

Source: https://www.epa.gov/system/files/documents/2024-02/ag-module-users-guide_508.pdf

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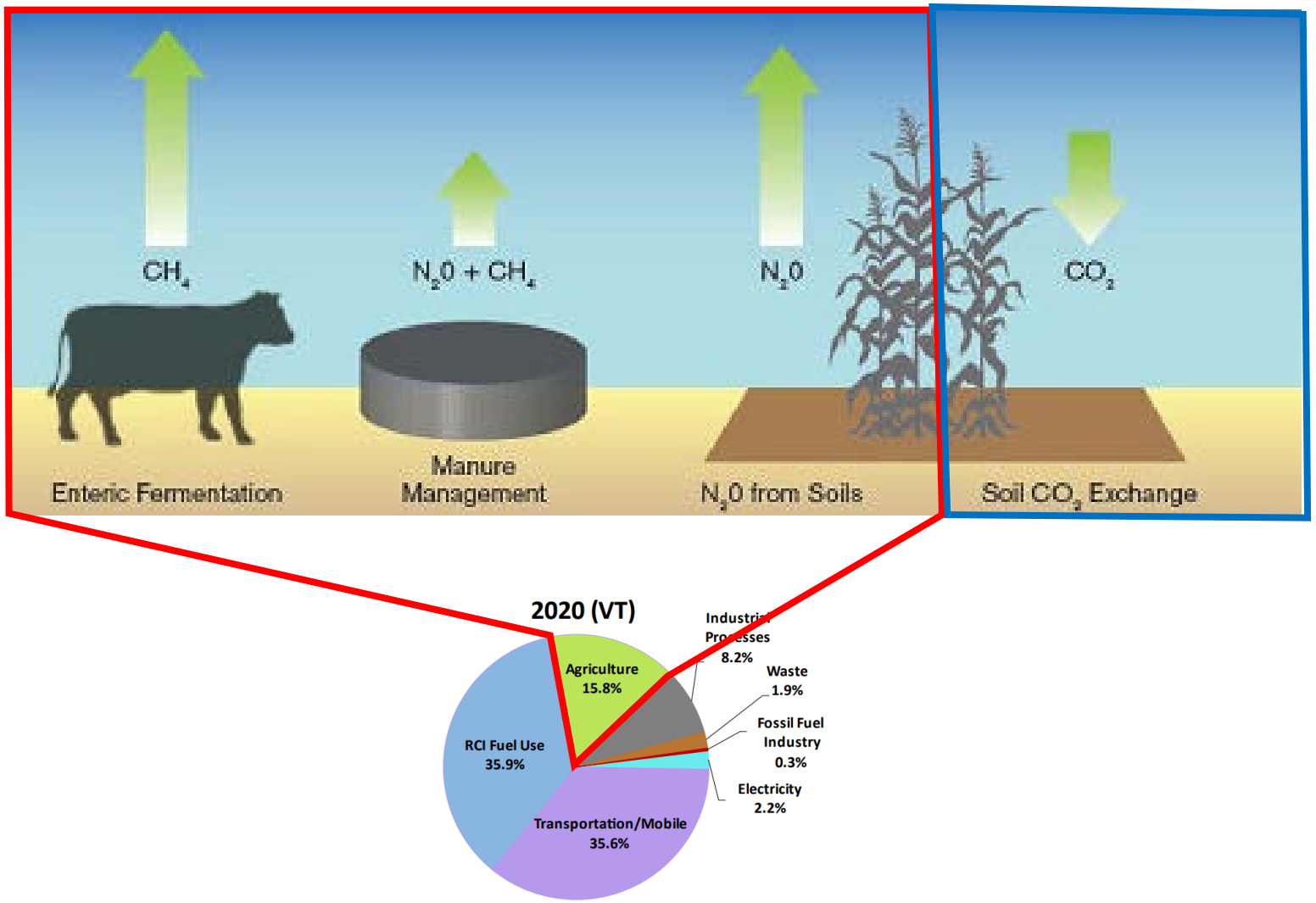
GHG Emissions & Sequestration



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H.688 Becomes: Global Warming Solutions Act

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Emission reduction requirements

~~goals of reducing emissions of greenhouse gases from the 1990 baseline~~, as measured and inventoried pursuant to section 582 of this title, by:

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Emission Inventory Procedure

Title 10 : Conservation and Development

Chapter 023 : Air Pollution Control

(Cite as: 10 V.S.A. § 582)

§ 582. Greenhouse gas inventories; registry

(a) Inventory and forecasting. The Secretary shall work, in conjunction with other states or a regional consortium, to establish a periodic and consistent inventory of greenhouse gas emissions. The Secretary shall publish the Vermont Greenhouse Gas Emission Inventory and Forecast by not later than June 1, 2010, and updates shall be published annually until 2028, until a regional or national inventory and registry program is established in which Vermont participates, or until the federal National Emissions Inventory includes mandatory greenhouse gas reporting. The Secretary of Natural Resources shall include a supplemental accounting in the Vermont Greenhouse Gas Emissions Inventory and Forecast that measures the upstream and lifecycle greenhouse gas emissions of liquid, gaseous, solid geologic and biogenic fuels combusted in Vermont.

(b) Inventory updates. To develop the Inventory under this section, the Secretary, in coordination with the Secretaries of Administration, of Transportation, of Agriculture, Food and Markets, and of Commerce and Community Development, and the Commissioner of Public Service, shall aggregate all existing statewide data on greenhouse gas emissions currently reported to State or federal entities, existing statewide data on greenhouse gas sinks, and otherwise publicly available data. Greenhouse gas emissions data that is more than 36 months old shall be updated either by statistical methods or seeking updated information from the reporting agency or department. The information shall be standardized to reflect the emissions in tons per CO2 equivalent, shall be set out in the inventory by sources or sectors such as agriculture, manufacturing, automobile emissions, heating, and electricity production, shall be compatible with the inventory included with the Governor's Commission on Climate Change final report and shall include, the following sources:

(1) information collected for reporting in the National Emissions Inventory, which includes air toxics, criteria pollutants, mobile sources, point sources, and area sources;

(2) in-state electricity production using RGGI and State permit information;

(3) vehicle miles traveled and vehicle registration data; and

(4) agricultural activities, including livestock and crop practices.

Source: https://legislature.vermont.gov/Documents/2020/Docs/BILLS/H-0688/H-0688%20As%20Introduced.pdf
Source: https://legislature.vermont.gov/statutes/section/10/023/00582

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EPA SIT & National Inventory Currently Two Chapters

SIT Chapter 7

EPA SIT	Category	GHG	VT	DEC
	Agriculture (emissions)			
2	**Enteric Fermentation**	CH4	Yes	Yes
3	**Manure Management**	CH4, N2O	Yes	Yes
4	**Agriculture Soils**	N2O		
4a	**Plant Residues & Legumes**	N2O	Yes	Yes
	Histosols (conversion)	N2O	Yes	No
4b	**Plant Fertilizers**	N2O	Yes	Yes
4c	**Animal Calculation Values**	N2O	Yes	Yes
5	**Rice Cultivation**	CH4	No	No
6	**Liming of Soils**	CO2	Yes	Yes
7	**Urea Fertilization**	CO2	Yes	Yes
8	**Ag Residue Burning**	CH4, N2O	No	No

SIT Chapter 8

EPA SIT	Category	GHG	VT	DEC
	Land Use, Land-Use Change, and Forestry (sequestration)			
7	**Ag Soil Carbon Flux** (Cropland and Grassland)		Yes	No
	Cropland Remaining Cropland			
	Land Converted to Cropland			
	Grassland Remaining Grassland			
	Land Converted to Grassland			
2	**Forest Carbon Flux**	flux	Yes	No
2a	Forest Remaining Forest			
	Land Converted to Forest			
	Forest Converted to Land			
3	**C Storage in Urban Trees**	storage	Yes	Yes
4	**Settlement Soils** (developed land	N2O	Unknown	No
5	**Forest Fires**	CH4, N2O	No	No
6	**Food Scraps & Yard Trimmings** (la	flux	Unknown	No

Source: https://www.epa.gov/sites/default/files/2018-01/documents/2018_complete_report.pdf

EPA SIT Tool Planned Updates (?)

- Planned updates to include the 2006 Intergovernmental Panel on Climate Change (IPCC) Updates
- Specifically, the Agriculture and LULUCF chapters were going to be combined, thereby accounting for GHG Flux from AFOLU

2006 IPCC Guidelines for National Greenhouse Gas Inventories

The release of the 2006 IPCC Guidelines for National Greenhouse Gas Inventories (2006 GL) may bring some structural and organizational changes to the SIT LUCF and Agriculture modules as well as prompting updates to some emission and stock change factors. Nearly 140 scientists and national experts from more than thirty countries collaborated in the creation of the *Revised 1996 IPCC Guidelines for National Greenhouse Gas Inventories* to ensure that the emission inventories submitted to the UNFCCC are consistent and comparable between nations. These guidelines were recently updated and revised to produce the *2006 IPCC Guidelines for National Greenhouse Gas Inventories*.

When the organizational structure outlined in the 2006 IPCC Guidelines is fully implemented, the Agriculture and LULUCF chapters of the NIR will be combined into a single Agriculture, Forestry, and Other Land Uses (AFOLU) chapter covering six land-use categories (Forest Land, Cropland, Grassland, Wetlands, Settlements, and Other Land). The Agriculture and LUCF modules of the SIT may be similarly combined and reorganized to maintain consistency with national and international inventory approaches. These changes will likely be incorporated in the next round of revisions to the SIT modules.

Source: https://gaftp.epa.gov/air/nei/ei_conference/EI16/session2/denny.pdf
Source: https://www3.epa.gov/ttn/chief/conference/ei16/session2/denny_pres.pdf

Agriculture GHG Emission Inventory

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- **May 22, 2006**: Act 168 of 2006: 'State of Vermont GHG Reduction Goals'
- On **July 1, 2006**: IPCC published: 2006 Guidelines for National GHG Inventories
- **Act 209 of 2008**: Amended Act 168 by defining 'Greenhouse Gas' – which was undefined in original law
- **GWSA of 2020 & Act 18 of 2023**: No review or updates for base GHG Emission Inventory

IPCC AR5 Revised Ag & LULUCF to a Single Chapter

IPCC AR4 (IPCC WGIII, 2007)
Agricultural and forestry mitigation were dealt with in separate chapters

IPCC AR5
First time - the terrestrial land surface, comprising agriculture, forestry and other land use (AFOLU), is considered together in a single chapter.

- Ensure all land based mitigation options can be considered together
- Minimise the risk of double counting or inconsistent treatment (e.g. different assumptions about available land)
- Consider systemic feedbacks between mitigation options related to the land surface

Working Group III contribution to the IPCC Fifth Assessment Report

ipcc INTERGOVERNMENTAL PANEL ON climate change 2 WMO UNEP

Source: 2006 IPCC Guidelines for National Greenhouse Gas Inventories, Volume 4, Section 1.1, Page 1.4
Source: https://unfccc.int/sites/default/files/3_tubiello_sbsta-ipcc_special_event_6june.pdf
Source: http://www.leg.state.vt.us/database/status/summary.cfm?Bill=S%2E0259&Session=2006
Source: https://www.osti.gov/etdeweb/biblio/20880391
Source: http://www.leg.state.vt.us/docs/legdoc.cfm?URL=/docs/2008/acts/ACT209.HTM&Session=2008

VCC Ag Budget

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Developing and issuing a Request for Proposals (RFP) that will review and analyze methodological gaps of emission inventory tools currently used by the State of Vermont to quantify greenhouse gas emissions for evaluating changes in the Agriculture, Forestry and Other Land Use (AFOLU) sector.	(9) Carbon Budget	$100,000	Applied for two US Climate Alliance Grant – one with a focus on ag emissions and another to focus on a regional effort to look at the forest sector.
Establishing a periodic and consistent carbon inventory and forecast for Vermont.	(9) Carbon Budget	$50,000	Not budgeted
Carbon forecasting	(9) Carbon Budget	$80,000	Not budgeted

Supplemental Agricultural Emissions analysis (Category: Analysis of CAP) - $100K

While ANR recently received funding from the US Climate Alliance to support investigation into tools and methods for accurately estimating net and gross greenhouse gas emissions from agricultural land use and practices, additional funding may be needed to complete this work and implement any recommendations made by the contractor performing the initial investigation. The subcommittee recommends that additional funds be appropriated in FY24 to complete this work to ensure that it is most useful when serving as a tool parallel to the existing Greenhouse Gas Emissions Inventory, which accounts for emissions on a gross basis.

October 21, 2022

Response to Request for Proposal (RFP)

Review of Agricultural Sector Greenhouse Gas Emissions and Sequestration in Vermont

ICF

ICF Incorporated, L.L.C. (an ICF company hereafter referred to as ICF) is a global consulting and technology services provider with more than 7,500 professionals focused on making big things possible for our clients. Our climate experts have conducted hundreds of public sector climate and energy action planning projects as well as GHG emission inventories for Delaware, Oregon, Pennsylvania, New York, and California. We have also assisted the U.S. Environmental Protection Agency in preparing the Inventory of U.S. Greenhouse Gas Emissions and Sinks (U.S. GHG Inventory) since its start in 1991, have developed (and continue to develop) state-level inventories for the U.S. GHG Inventory's energy and IPPU sectors, and have developed and continue to maintain the State Inventory Tool. ICF combines decades of experience working on

Source: https://outside.vermont.gov/agency/anr/climatecouncil/Shared%20Documents/Additional_Technical_Analyses.pdf
Source: https://outside.vermont.gov/agency/anr/climatecouncil/Shared%20Documents/10-6-22%20Science%20and%20Data%20Subcommittee%20FY%2024%20budget%20items_

Results of ICF Ag GHG Emission Inventory Study

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ICF

1. **SIT summary remarks:** SIT is designed specifically as a state inventorying tool, is freely available, accounts for emission sources on at least IPCC Tier 2 level methods, and requires minimal human and technical resources to carry out a complete annual GHG inventory. Given ANR's resource availability, **ICF recommend that SIT is the best-suited available tool for Vermont to develop a state level inventory.**

2. ***To report a complete Agricultural GHG inventory, ICF recommend that ANR report emissions and removals from agricultural lands as estimated by the SIT LULUCF module alongside GHG estimates from the SIT Agriculture module.*** Soil carbon fluxes are estimated in the SIT LULUCF module. In the SIT

3. **COMET-Planner** is recommended for use to account for implementation of management practices, in combination with the SIT Agriculture and LULUCF modules.

4. ## Conclusions

   ICF commend Vermont as one of the leading U.S. states in ICF's knowledge to be exploring means of customizing their AFOLU GHG inventory to support AFOLU emissions and removals policy decisions. In ICF's knowledge, California and Hawaii have developed and maintain state specific AFOLU GHG inventories.

   [4] https://unfccc.int/resource/tet/bg/bg2-02_Overview_Notation_Keys.pdf

   Vermont, along with California and Hawaii, are well positioned to make informed policy decisions around implementing land management mechanisms to ultimately reduce GHG emissions, or enhance carbon sequestration, from the AFOLU sector.

Source: ICF Review of Agricultural Greenhouse Gas Emissions and Sequestration in Vermont: Inventory Tools and Methodological Recommendations (2023)

(EPA SIT Ag Emissions) +

(EPA SIT LULUCF) +

(COMET-Planner) =

Updated VT Ag Emissions Inventory

Field Practices

493,160 Acres of Conservation Practices Implemented

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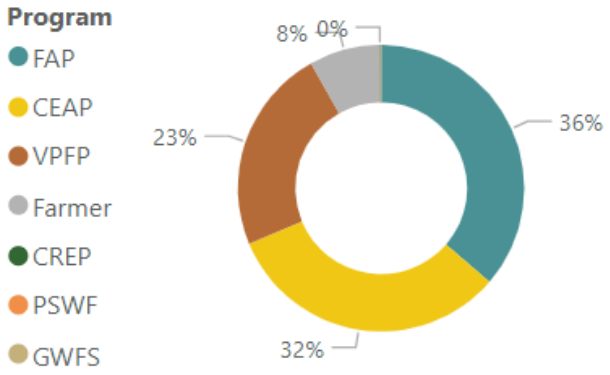
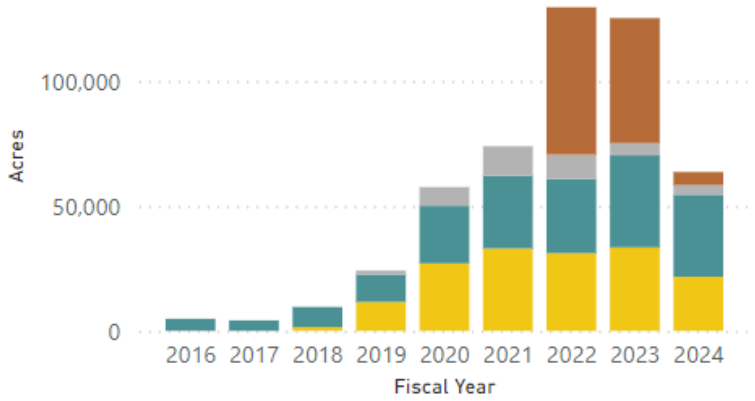
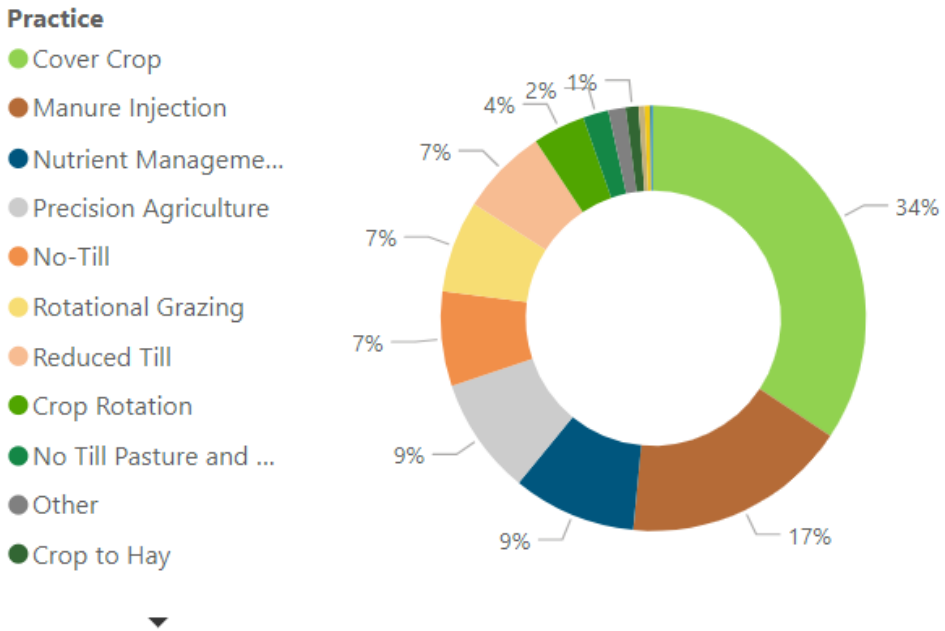
Acres by Program



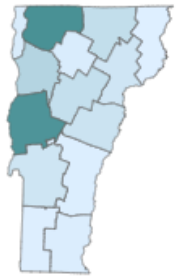
Acres by Fiscal Year and Program



Acres by Practice

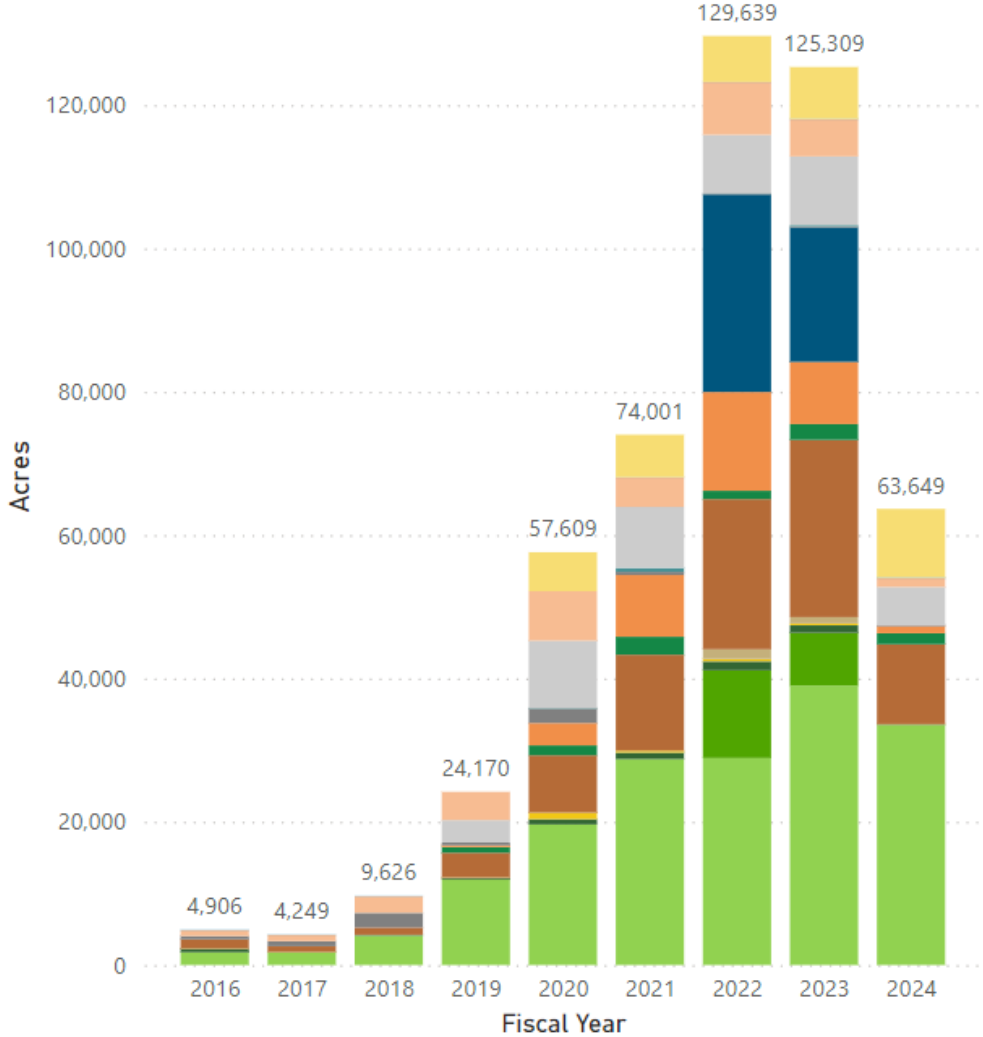


Acres by County



Acres by Basin

Acres by Fiscal Year and Practice



Due to ongoing projects, data reported in the most recent fiscal year is not complete until the following fiscal year, i.e. fiscal year 2024 data is not complete.

Emissions Reductions

Net emissions (balance of emissions released & removed from atmosphere) based on acres of practices implemented by VAAFM funding programs. Estimated using USDA COMET-Planner model. **Net sequestration removes more carbon than greenhouse gases (GHG) emitted.**

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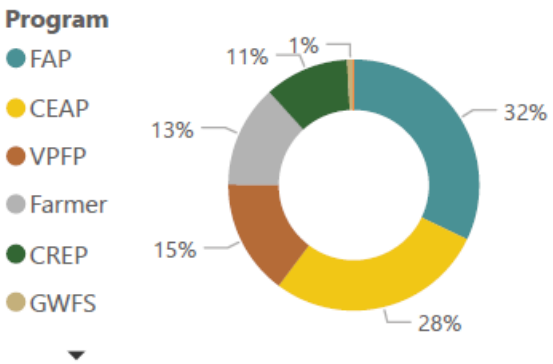
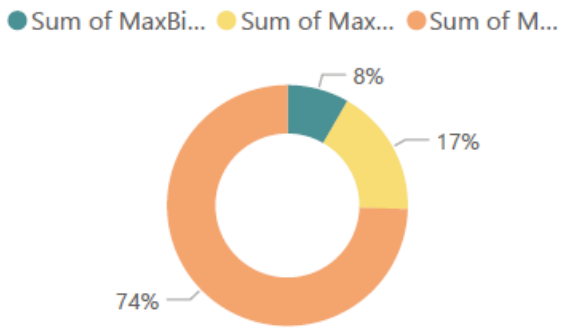
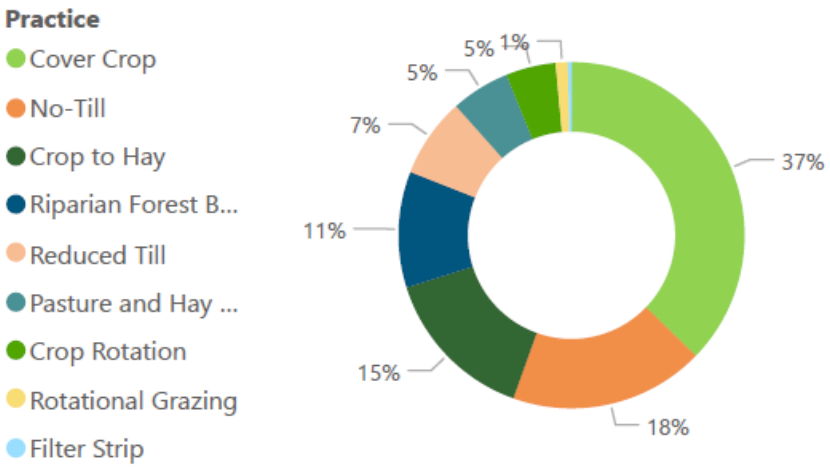
Net Sequestration by Program



Net Sequestration by Type



Net Sequestration by Practice



- Min/Max values vary based on possible management scenarios of practice implementation.
- Units are metric tons (MT) of carbon dioxide equivalents (CO2e) per year, which allow different greenhouses to be compared.

Max Values (MT CO2e)

Net Sequestration

92,168

Soil Carbon Sequestered

81,184

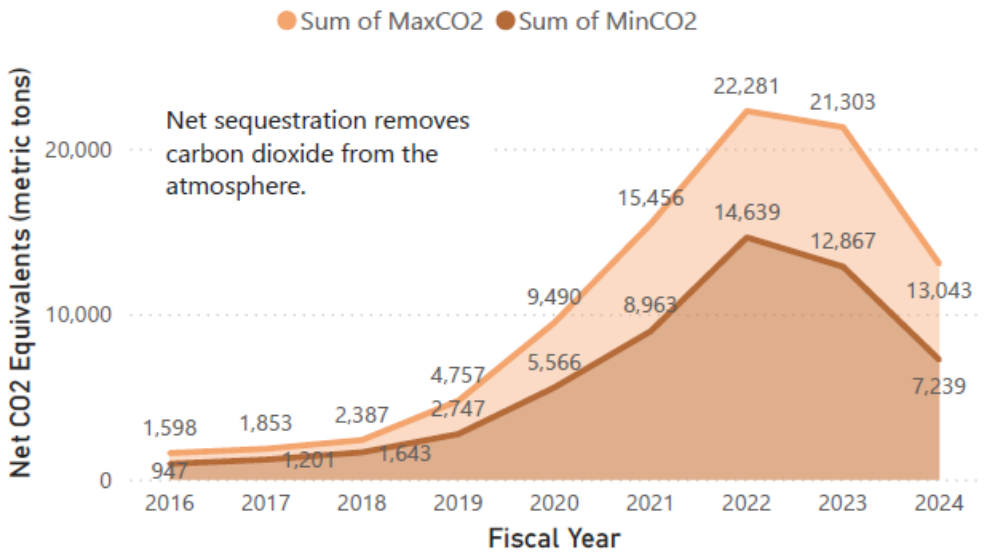
Biomass Carbon Sequestered

9,065

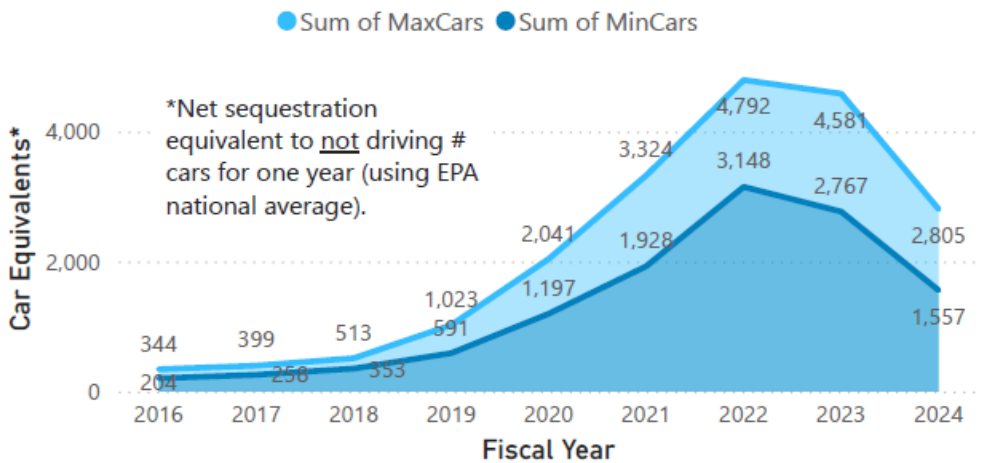
N20 Emissions Reduced

18,729

Net Sequestration (MT CO2e) by Fiscal Year



Car Equivalents (cars/year) by Fiscal Year



GHG Mitigation from VT Agriculture

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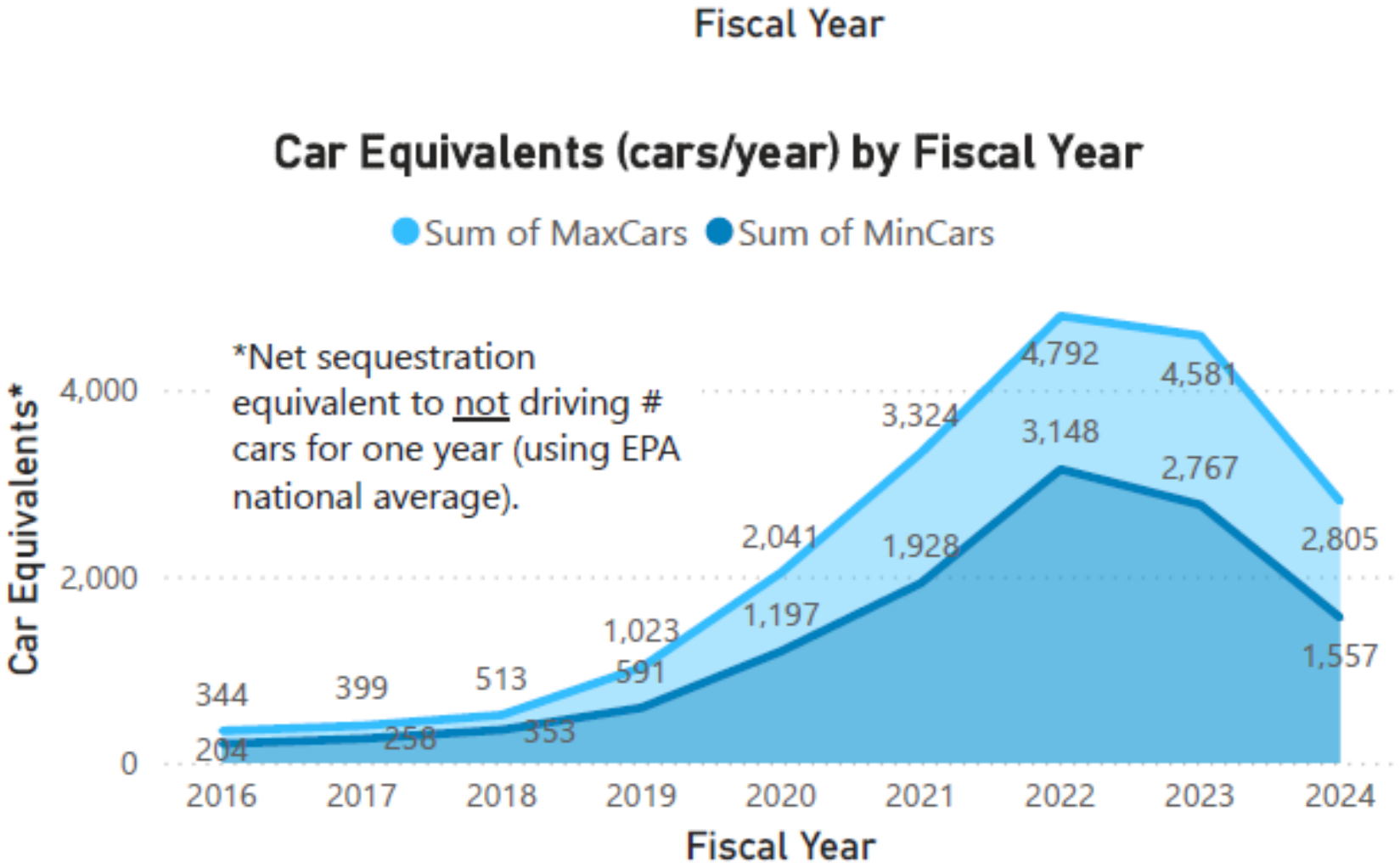

	Ag Net Sequestration in cars not driven per year		
	Min	**Max**	**Mean**
2016	204	344	274
2017	258	399	328.5
2018	353	513	433
2019	591	1023	807
2020	1197	2041	1619
2021	1928	3324	2626
2022	3148	4792	3970
2023	2767	4581	3674
2024	1557	2805	2181
Total	**12003**	**19822**	**15912.5**

GHG Mitigation from VT Agriculture

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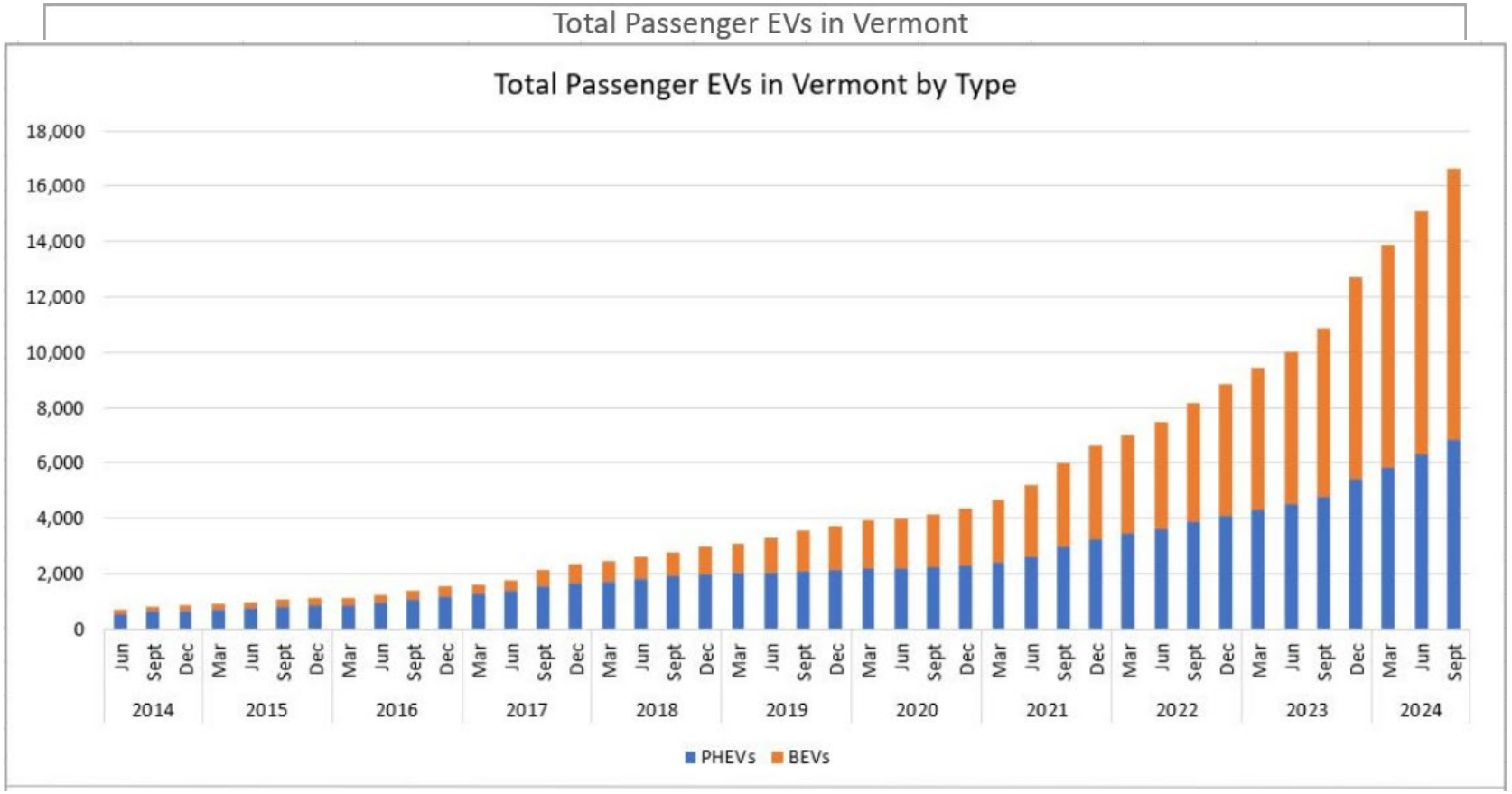

Total Mean Ag Net C Sequestration: 15,912.5 ICEs

Total EVs June 2024: 15,074
Total BEVs June 2024: ~9,074

Source: https://dec.vermont.gov/air-quality/mobile-sources/zero-emission-vehicles

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Total Mean Ag Net C Sequestration: 15,912.5 ICEs

Average Cost of Reducing Phosphorus ($/kg P)

43

Average Cost of Reducing Carbon ($/net mt CO2e)

80

Only calculated for practices with costs and reductions (C or P)

Table 2: Summary of Ecosystem Services Valuation of Soil-Health Improvements for two Scenarios and 4 Services.

	Valuations ($/ac/yr)			*Physical Quantities*		
Service	*Good*	*Best*	*Valuation Rate ($/unit)*	*Good*	*Best*	*Units*
Carbon Storage	$9.42	$18.84	$1.44	13.1	6.5	Tons (US) of carbon /acre.
Flood-Runoff Mitigation	$1.10	$2.37	$8.40	0.28	0.13	Inches / large storm
Erosion Reduction	$2.29	$4.56	$11.20	0.20	0.41	Tons (US) /acre/year
Phosphorus Retention	$7.87	$4.12	$56.82	0.07	0.14	Lbs / acre /year

Source: https://scholarworks.uvm.edu/cgi/viewcontent.cgi?article=1035&context=extfac
Source: https://dec.vermont.gov/sites/dec/files/WID/CWIP/Clean%20Water%20Initiative%202023%20Performance%20Report.pdf

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# Pathway	# Strategy	Pathway	Strategy	Detail	Measure / Method
		A sectoral pathway is a high level means of achieve GHG emissions reduction	Description of the specific policy or program that will achieve the desired outcome		Below the sectoral pathway, what are the specific outcomes needed to achieve emissions reductions
1	1	Amend the Vermont **Greenhouse Gas (GHG) Emissions Inventory & Forecast** for the agricultural sector to represent its role in GHG emissions and removals as an Agriculture, Forestry, and Other Land Use (**AFOLU**) sector. (SIT Module 7 [Ag Emissions]) + (SIT Modlue 9 [LULUCF] + (COMET-Planner ERCs) = Agricultural Emisisons	Refine Module 7 of SIT to reflect Vermont-specific data and management.	Amend Module 7 [Ag Emissions] of the EPA State Inventory Tool (SIT) to incorporate State-specific data on agricultural management to improve accuracy of the Inventory.	ICF: "ICF recommend that SIT is the best-suited avalible tool for Vermont to develop a state level [GHG] inventory."
			Incorporate Module 8 of SIT into the Agricultural Emissions equation.	Incorporate Module 8 [LULUCF] of the EPA State Inventory Tool (SIT) alongside Module 7 into the VT GHG Emission Inventory & Forecast to reflect removals of GHG emissions from the atmosphere and their sequestration in agricultural lands.	ICF: "To report a complete Agricultural GHG inventory, ICF recommend that ANR report soil carbon emissions and removals from agricultural lands as estimated by the SIT LULUCF module alongside GHG estimates from the SIT Agriculture module."
			Incorporate COMET-Planner Emission Reduction Coefficients (ERCs) into the Agricultural Emissions equation to reflect cropland practice GHG mitigation benefits.	Apply Vermont-specific COMET-Planner Emission Reduction Coefficients (ERC) to farmer conservation practice implementation rates and incorporate into Module 7 of SIT to account for mitigaiton estimates from cropland management practices.	ICF: "COMET-Planner is recommended for use to account for implementation of management practices in combination with the SIT agriculture and LULUCF modules."
2	2	Expand, enhance and adapt **existing** State of Vermont **programs** that support agricultural GHG emissions reductions and/or agricultural soil carbon sequestration.	**Agronomic and grazing practices** on farms such as no-till, cover crop, and rotational grazing.	**Agronomic** practices that reduce tillage and increase vegetative cover, e.g. no-till, cover crop	AAFM WQ practice tracking / COMET-Planner ERCs
				Grazing practices that increase vegetative cover and forage quality, e.g. rotational grazing	AAFM WQ practice tracking / COMET-Planner ERCs
				Agroforestry / Silvopasture	AAFM WQ practice tracking / COMET-Planner ERCs
				Edge-of-field practices that increase herbaceous and woody vegetation, e.g. riparian forest buffer	AAFM WQ practice tracking / COMET-Planner ERCs
				Nutrient Management and Amendments on agronomic and grazing land, e.g. biochar	AAFM WQ practice tracking / COMET-Planner ERCs
	3		**Biogas capture** and energy generation on farms.	E.g. anaerobic digestors, roofs and covers	VT § 248 Energy Siting Permit / EPA Livestock Anaerobic Digester Database
	4		Continued funding for the development of a climate **feed management** program.	Feed Amendments, e.g. seaweed, biochar	AAFM Ag-CWIP Research Funding
				Feed Quality, e.g. forage quality	AAFM Ag-CWIP Research Funding
	5		Voluntary adoption of **natural resource restoration** practices that support climate mitigation and resilience, including river corridor easements, wetland restoration, and afforestation practices.	River corridor easements, wetland reserve enhancement program, CREP	AAFM WQ practice tracking / COMET-Planner ERCs
3	6	Continue implementing a **PES Program** for Healthy Soils and Soil Carbon Sequestration.	Continue implementing a State of Vermont **PES Program** that supports the development of healthy soils and carbon sequestration in soils. CSP+ is a joint program administered by USDA NRCS-VT & VAAFM.	Same mitigation methods as existing state programs, but expansion via a proactive payment for a performance metric(s) that rewards or incentives farmers for healthy soils and carbon sequestration in ag soils.	AAFM WQ practice tracking / COMET-Planner ERCs
4	7	**Protect agricultural farmland** (and associated natural and working lands) from development.	Farm **Conservation**	E.g. Agricultural Conservation Easements, Act 250; "development" to include siting of renewables	VHCB annual reporting
	8		Farm **Viability**	E.g. Current Use, Farm Viability Programming, farm succession	VHCB / SoV annual reporting
				New farmer training, outreach, and support	AAFM WQ practice tracking / COMET-Planner ERCs
5	9	Enhance **education, outreach, research**, and technical assistance programming to encourage farmer participation and adoption of Climate Smart Agricultural strategies.	Enhance **education, outreach, and technical assistance** programming to support farmer learning and adoption of climate smart agricultural practices.	Training for all agricultural service providers on Climate Smart Agriculture.	AAFM Partner / Practice tracking
	10		Fund and learn from local university and applied **research** to support.	Coordination with local research institutions and using existing communication and education channels to share with government, farmers, stakeholders.	AAFM Partner / Practice tracking
6	11	**Partnerships**	Maintain Ag & Ecosystems Subcommittee through development and implementation of GWSA and CAP to cultivate, build and reinforce state, federal, nonprofit, and private sector collaborations	Maintain Ag & Ecosystems Subcommittee through development and implementation of GWSA and CAP to cultivate, build and reinforce state, federal, nonprofit, and private sector collaborations	
	12		Coordination with **federal** NRCS cost-share programs to elevate climate mitigation practices in Vermont, e.g. silvopasture, digestation	Coordination with **federal** NRCS cost-share programs to elevate climate mitigation practices in Vermont, e.g. silvopasture, digestation	

Timeline

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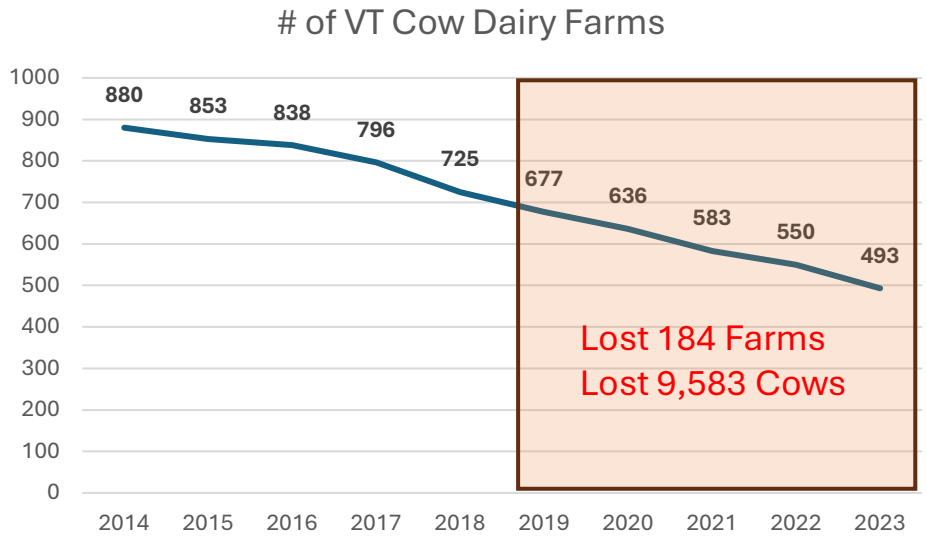
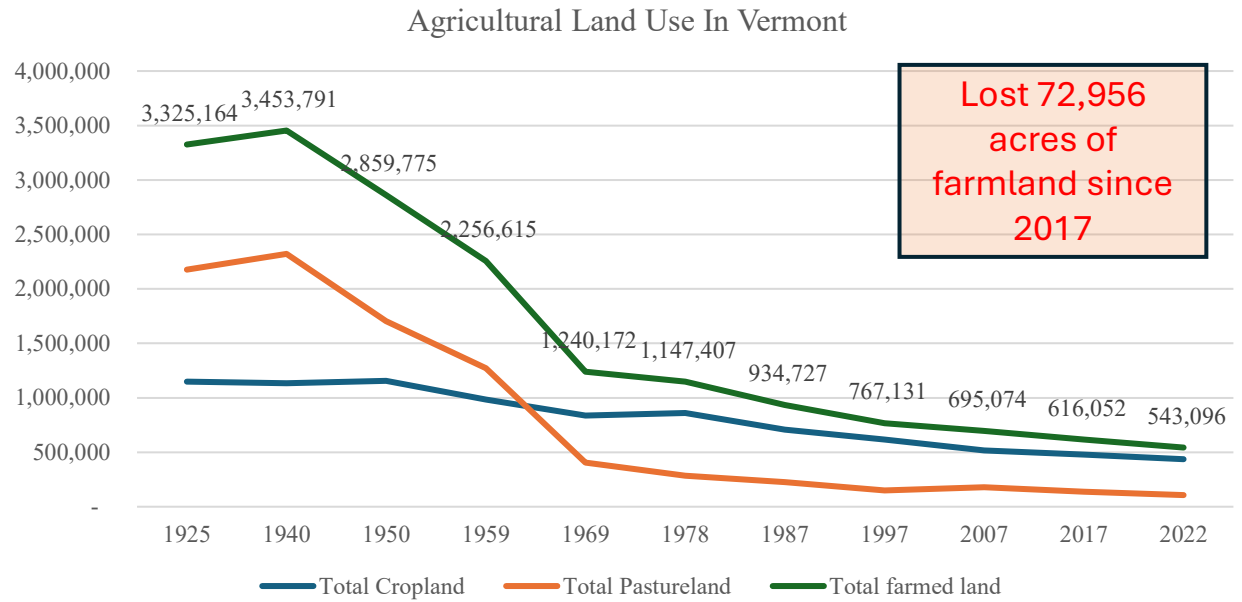
- 1/14/2020 – GWSA Introduced
- 9/22/2020 – Veto override
- 11/20/2020 – Vermont Climate Council Convened
- 12/1/2021 – Vermont "Initial" Climate Action Plan (CAP) Published
- 10/21/2022 – RFP for Ag GHG Emission Inventory Response Window Closed
- 3/31/2024 – RFP with ICF for Ag GHG Emission Inventory Closed

4 Years





Source: USDA NASS & Census Vermont – 1925 to 2022

Vermont Farmer Perspectives on Improving Soil Health

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- **99%** believe improvements in soil health have **benefits for the environment** off their farm.
- **95%** believe they should take additional steps beyond required practices to **protect soil health.**
- **90%** believe they have a responsibility to **be part of climate solutions**
- **94%** believe they have the **knowledge and technical skill to enhance soil health** on their farm, yet only **58%** have the **financial capacity** to do so

Vermont farmers have:

- High level of stewardship ethic & motivation
- High level of knowledge and skill
- Need for financial capacity to adopt

Ultimately the limiting factor is the economic question: *is it worth it for my farm?*

From: *VT PES Technical Research Report #3: Results of the Farmer Conservation & Payment for Ecosystem Services Survey;*
https://agriculture.vermont.gov/sites/agriculture/files/doc_library/3.%20Farmer%20PES%20Survey%20Results_%20VT%20PES%20Task%203a%20Report.pdf

Reccomendation: 6 Pathways; 12 Strategies

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# Pathway	# Strategy	**Pathway**
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	4	
	5	
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4	7	**Protect agricultural farmland** (and associated natural and working lands) from development.
	8	
5	9	Enhance **education, outreach, research**, and technical assistance programming to encourage farmer participation and adoption of Climate Smart Agricultural
	10	
6	11	**Partnerships**
	12	