Food Waste In Central Vermont:

A Story of People, Chickens, Compost, a Landfill, Electricity and a Law

John Jose, School Program Coordinator
Central VT Solid Waste Management District

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First, Some Background Info:

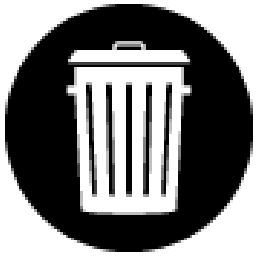
- Defining Solid Waste
- CVSWMD Demographics
- Who Needs to be Involved?

Examples of "Solid Waste":

"Blue bin" or "regular" recycling)

Food waste (compost)

Trash



Hazardous Waste (poisonous, toxic)

Special Recycling

Electronic Waste ("E-waste")

Mercury-containing bulbs (& thermostats)

Batteries

Paint

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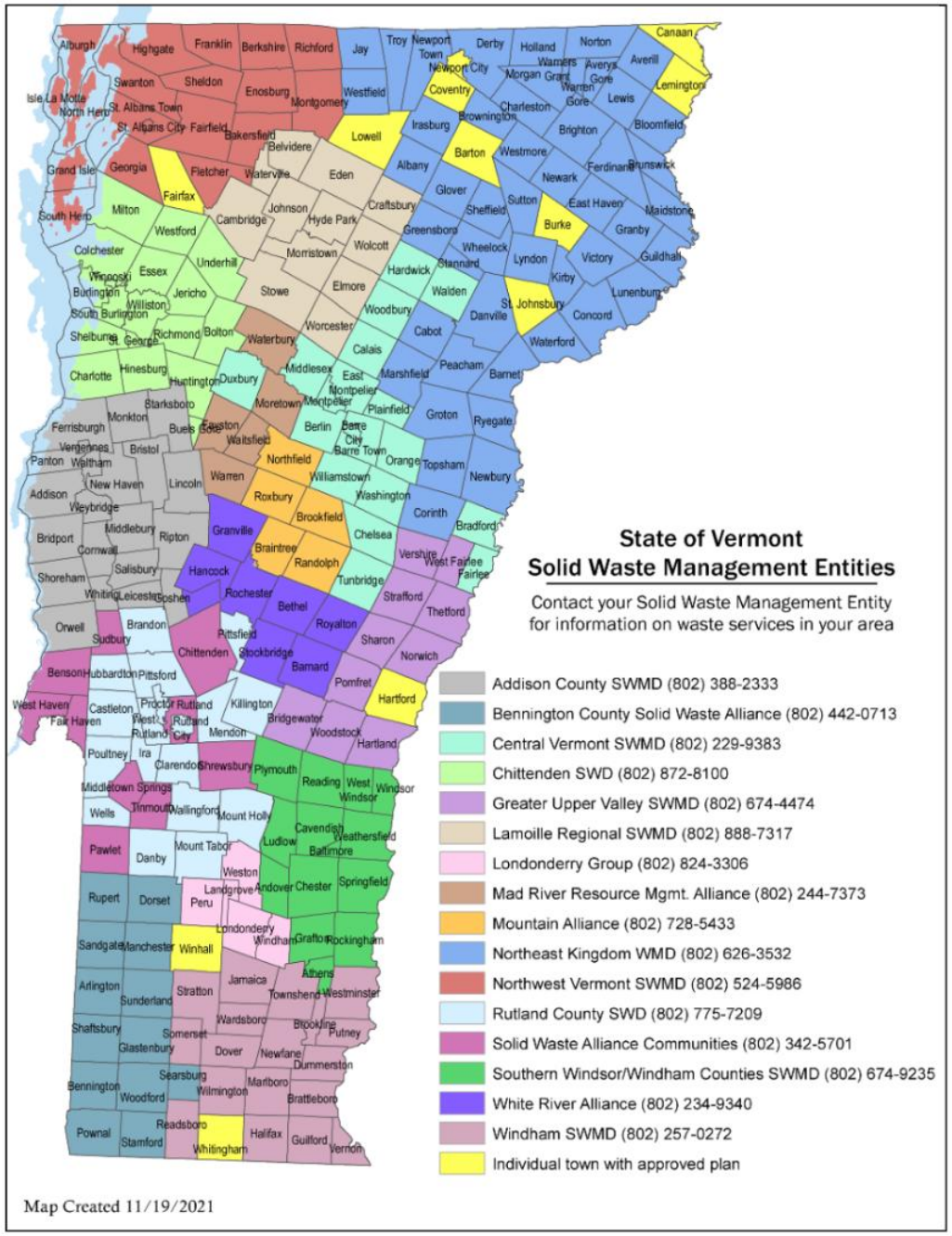
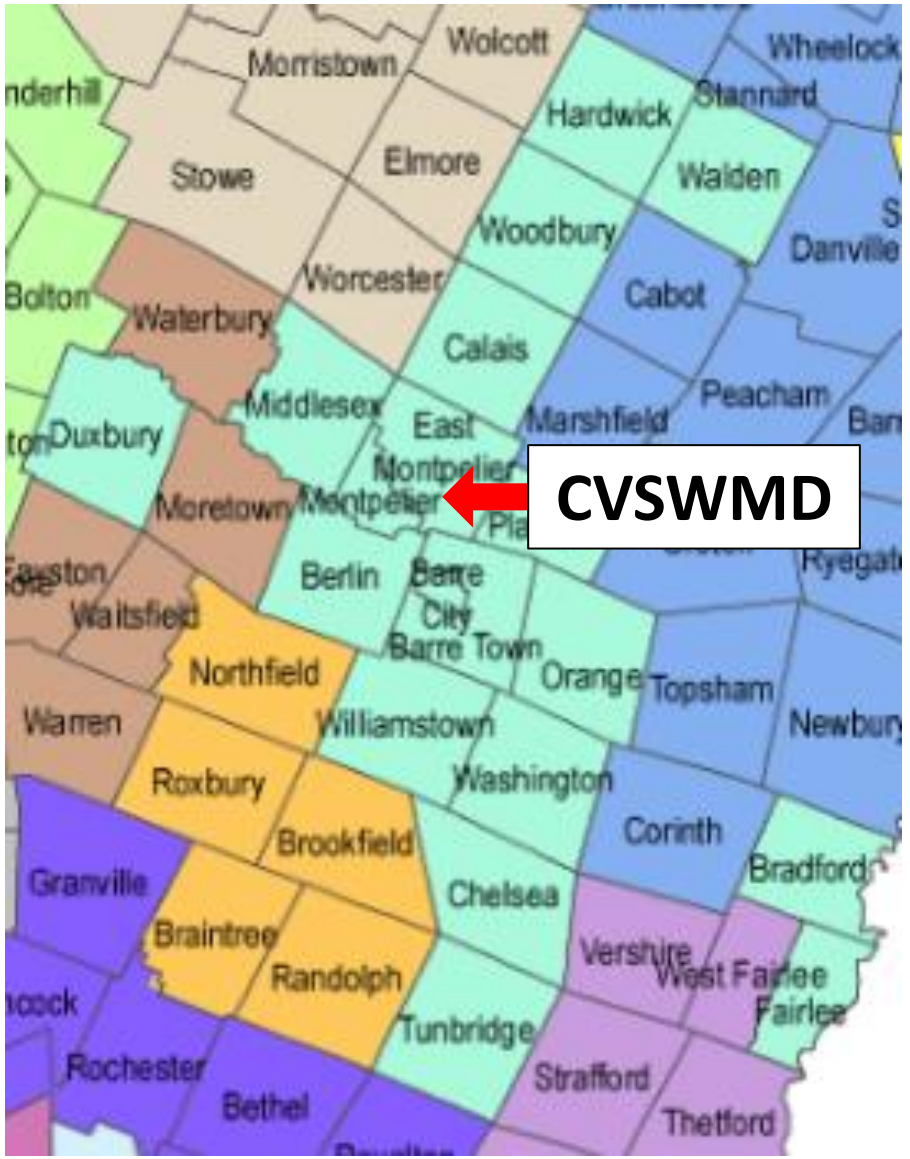
CVSWMD is a "Union Municipality"





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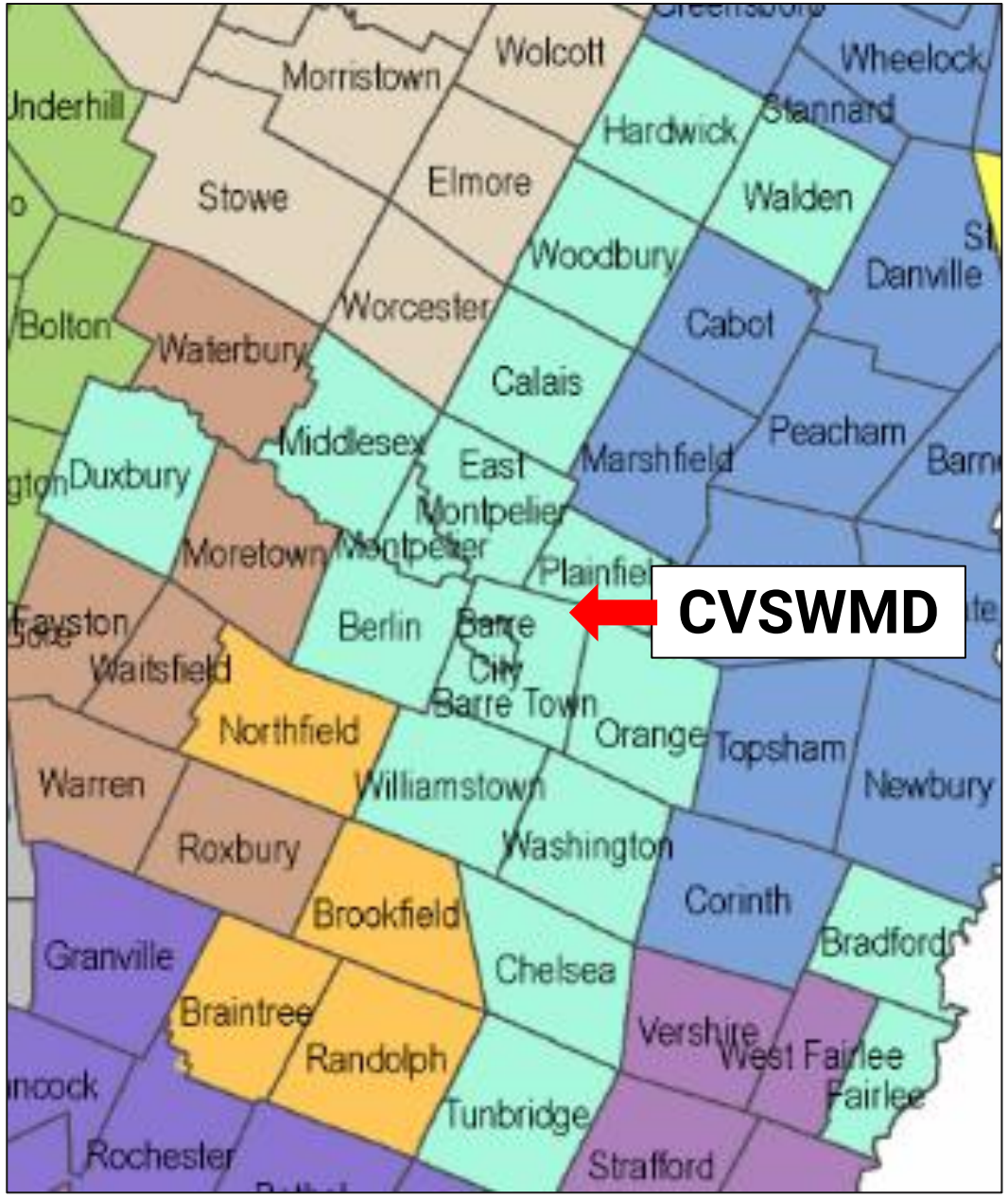

CVSWMD Demographics:

19 towns/cities

600 square miles

~ 53,000 people

Schools, businesses, homeowners, renters produce tons of these different types of solid waste every year:

Taking all this into consideration…

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Can the workers at CVSWMD do it alone?








Or do we need some help?

Who do we need help from?

Answer:

EVERYONE needs to get involved!

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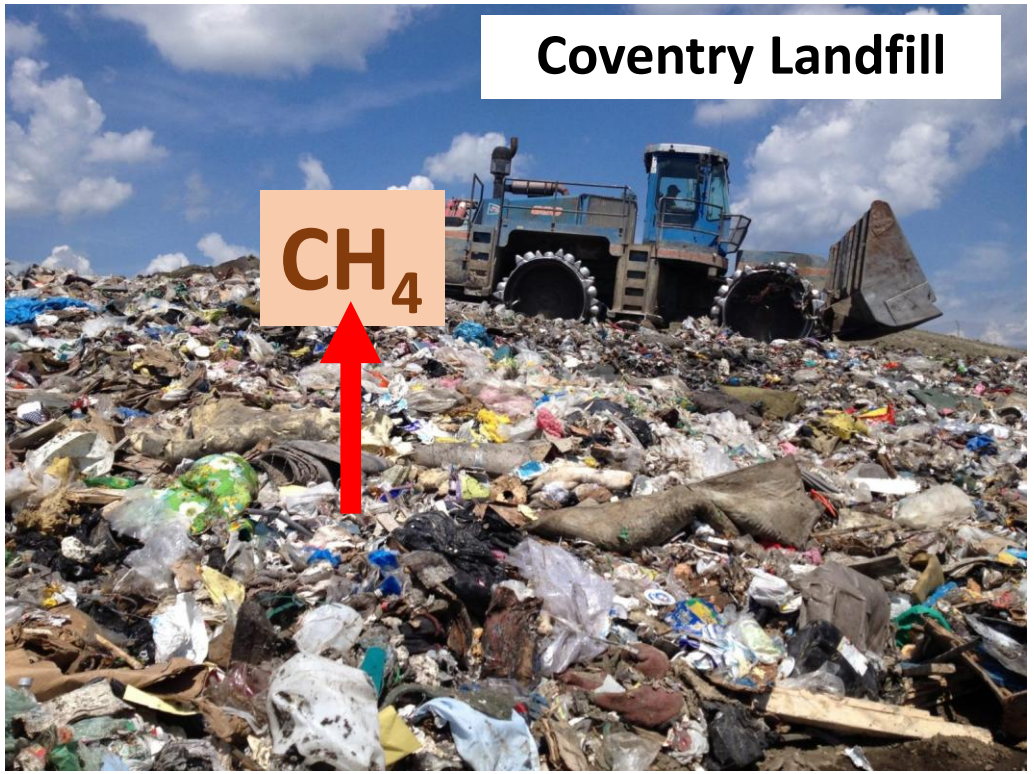
Now, On To Our Story…

Why Collect Food Scraps to Keep Them Out of the Landfill?

1. Natural resource we can use to generate compost products or electricity and heat by biodigestion.



2. Take up landfill space

3. Contribute to climate change (methane)

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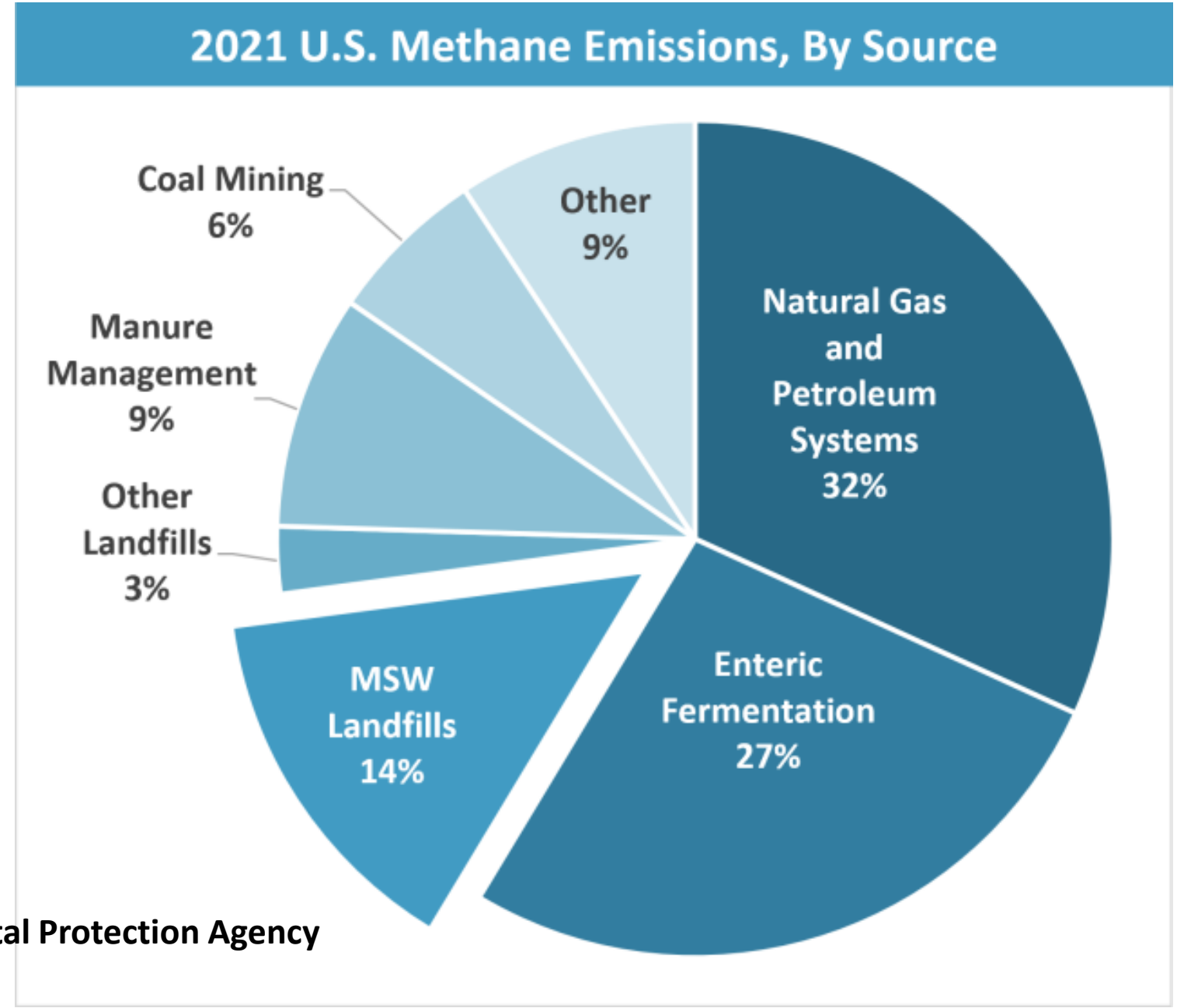

Let's look at the top 3 emitters...

In 2021 methane emissions from landfills ("MSW Landfills" in the graphic) accounted for 14% of total methane emissions in the US.

US Environmental Protection Agency

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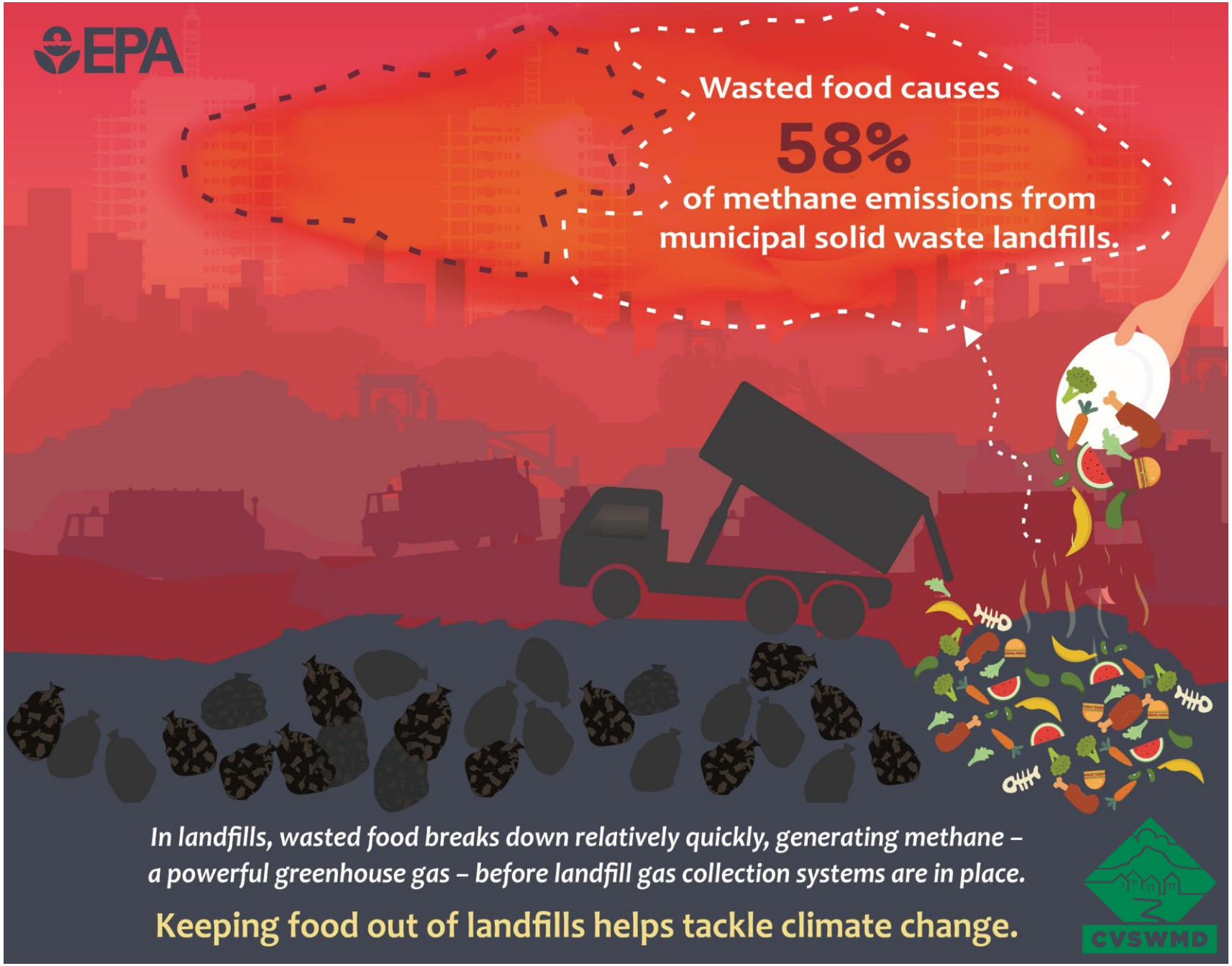
Quantifying Methane Emissions from Landfilled Food Waste (1990-2020)

56% of methane emissions from landfills are a result of food waste being trashed.

Total emissions from municipal solid waste landfills are decreasing but methane emissions from landfilled food waste are increasing.

Landfilled food waste has an outsized impact on methane emissions and diverting food waste from landfills is an effective way to reduce landfill methane emissions.



With Concerns Over All The Aforementioned…

Central VT Solid Waste Management District began collecting food scraps from businesses & schools, from 2004 until 2017.

Approx. 12,000 tons of food waste was diverted from the landfill.

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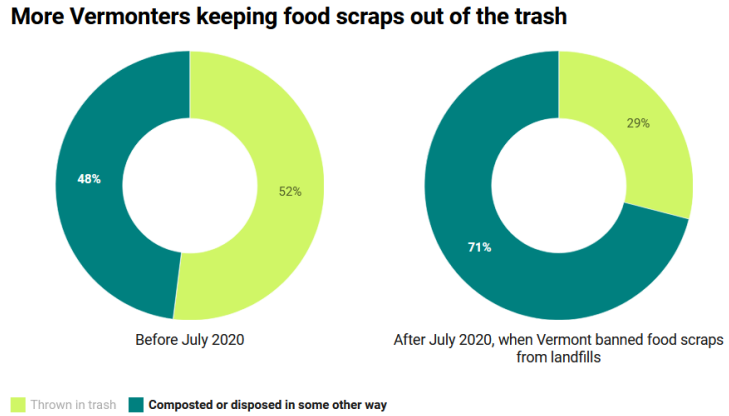
CVSWMD's Success Set The Stage For What Followed…

Eight years after CVSWMD began its food scrap collection program, Act 148, Vermont's Universal Recycling Law (2012), went into effect. This included a phased-in ban on food scraps from the landfill.

That ban on food scraps from the landfill went into full effect in 2020.

The full ban significantly increased the volume of food scraps diverted and larger-scale haulers looked to other means of diversion, including biodigesters.



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CVSWMD → Grow Compost VT → Casella Waste Management

In 2017 CVSWMD shifted its food scrap hauling operations to Grow Compost of Vermont (Grow).

Grow used composting facilities but increased their use of biodigesters as outlets.

In 2021, Casella Waste Management purchased Grow. has continued to rely primarily on biodigester disposal of collected food waste.

Gordon Miller

Now food waste collected from ~ 75% of public schools in CVSWMD is used as feedstock for biodigesters, a significant shift, over a period of just a few years, from when the majority of school food scraps were composted.

Current School Food Scrap Disposal Options in Central VT

On Campus Composting

Composting Facilities

Biodigestion

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Your School:

Your school started diverting food scraps from the landfill for composting in _____. Your food scraps were land-filled until then.

For example, in the_____-_____ school year, _____ tons of food scraps were collected from your school and kept out of the landfill.

Your hauler was_____. Your current hauler is_____.

Currently, your food scraps are

- Biodigested
- Composted/Fed to chickens
- Composted on-campus

Pros and cons of former and current means of food scrap disposal for your school.

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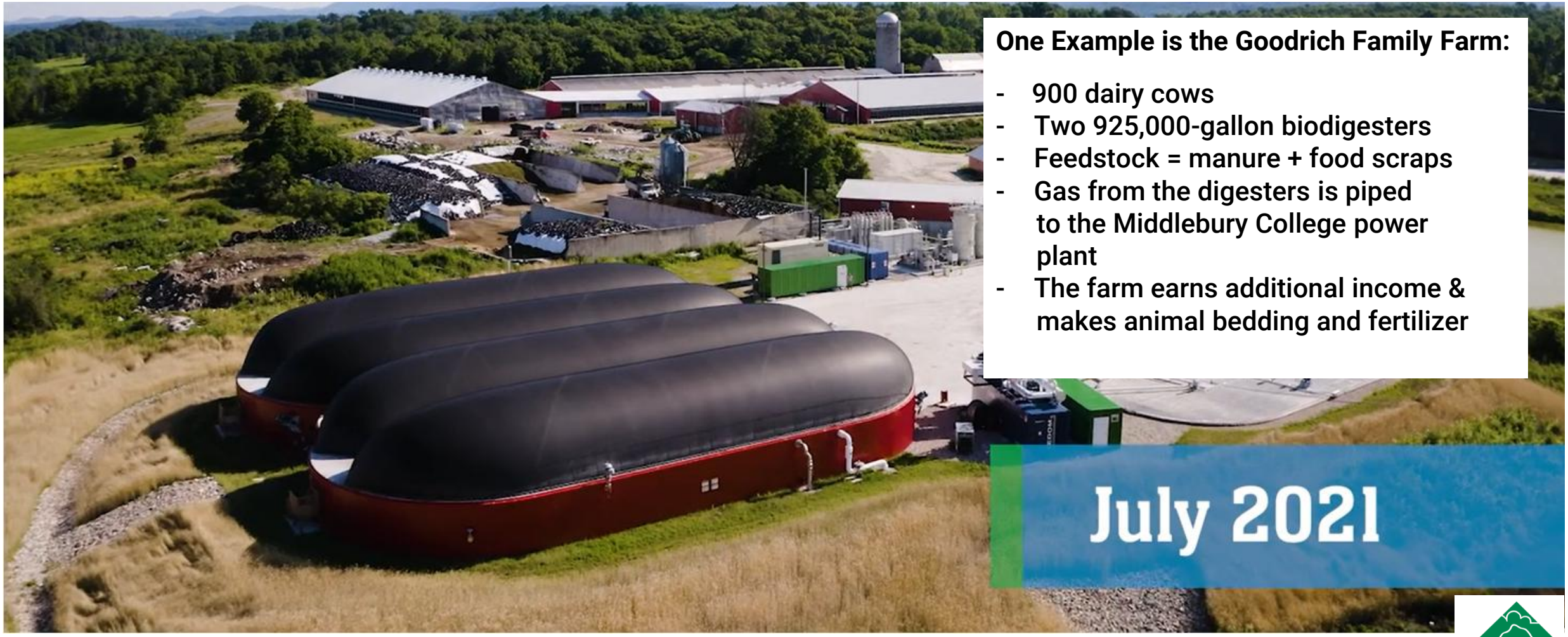
Current Destination for Most CVSWMD School Food Scraps is a Biodigester



One Example is the Goodrich Family Farm:

- 900 dairy cows
- Two 925,000-gallon biodigesters
- Feedstock = manure + food scraps
- Gas from the digesters is piped to the Middlebury College power plant
- The farm earns additional income & makes animal bedding and fertilizer

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Monument Farms, A Vermont Dairy Farm w/ a Biodigester

This farm only uses cow waste, not food scraps, as feedstock for its biodigester, but the video helps to describe the biodigestion process.

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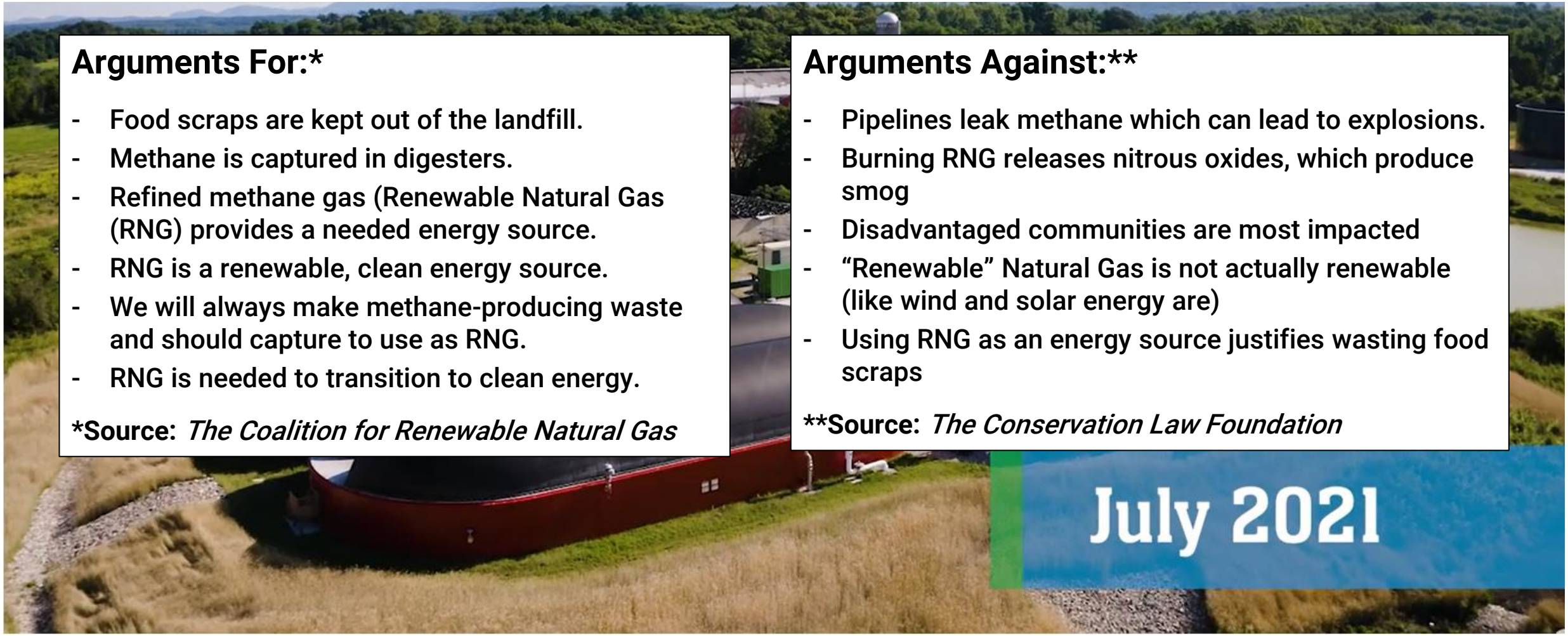
Biodigesters as a Source of Energy: Arguments For & Against…



Arguments For:*

- Food scraps are kept out of the landfill.
- Methane is captured in digesters.
- Refined methane gas (Renewable Natural Gas (RNG) provides a needed energy source.
- RNG is a renewable, clean energy source.
- We will always make methane-producing waste and should capture to use as RNG.
- RNG is needed to transition to clean energy.

***Source:** *The Coalition for Renewable Natural Gas*

Arguments Against:**

- Pipelines leak methane which can lead to explosions.
- Burning RNG releases nitrous oxides, which produce smog
- Disadvantaged communities are most impacted
- "Renewable" Natural Gas is not actually renewable (like wind and solar energy are)
- Using RNG as an energy source justifies wasting food scraps

****Source:** *The Conservation Law Foundation*

Question: Why do we waste enough food that it can be used to generate energy? And what does this mean for us?

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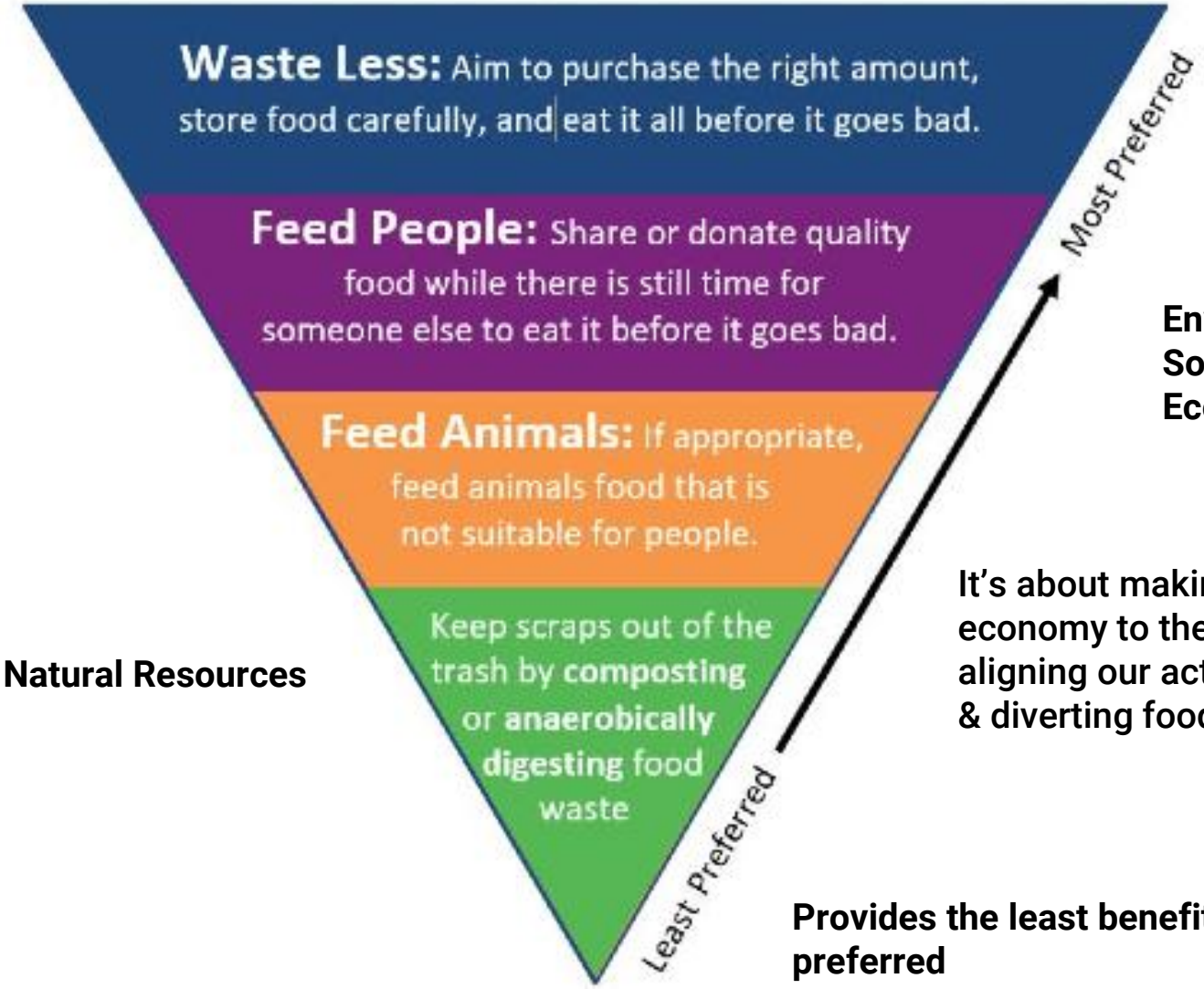
Vermont's Priorities for Food & Food Scraps



VT Agency of Natural Resources

This is *not* a "good" to "bad" prioritization ranking!

Provides the most benefits, most preferred

Environment
Society
Economy

=

The Three Pillars of Sustainability

It's about making decisions that benefit our environment and economy to the greatest extent possible, by assessing and aligning our actions with our priorities for reducing food waste & diverting food scraps.

Provides the least benefits, least preferred

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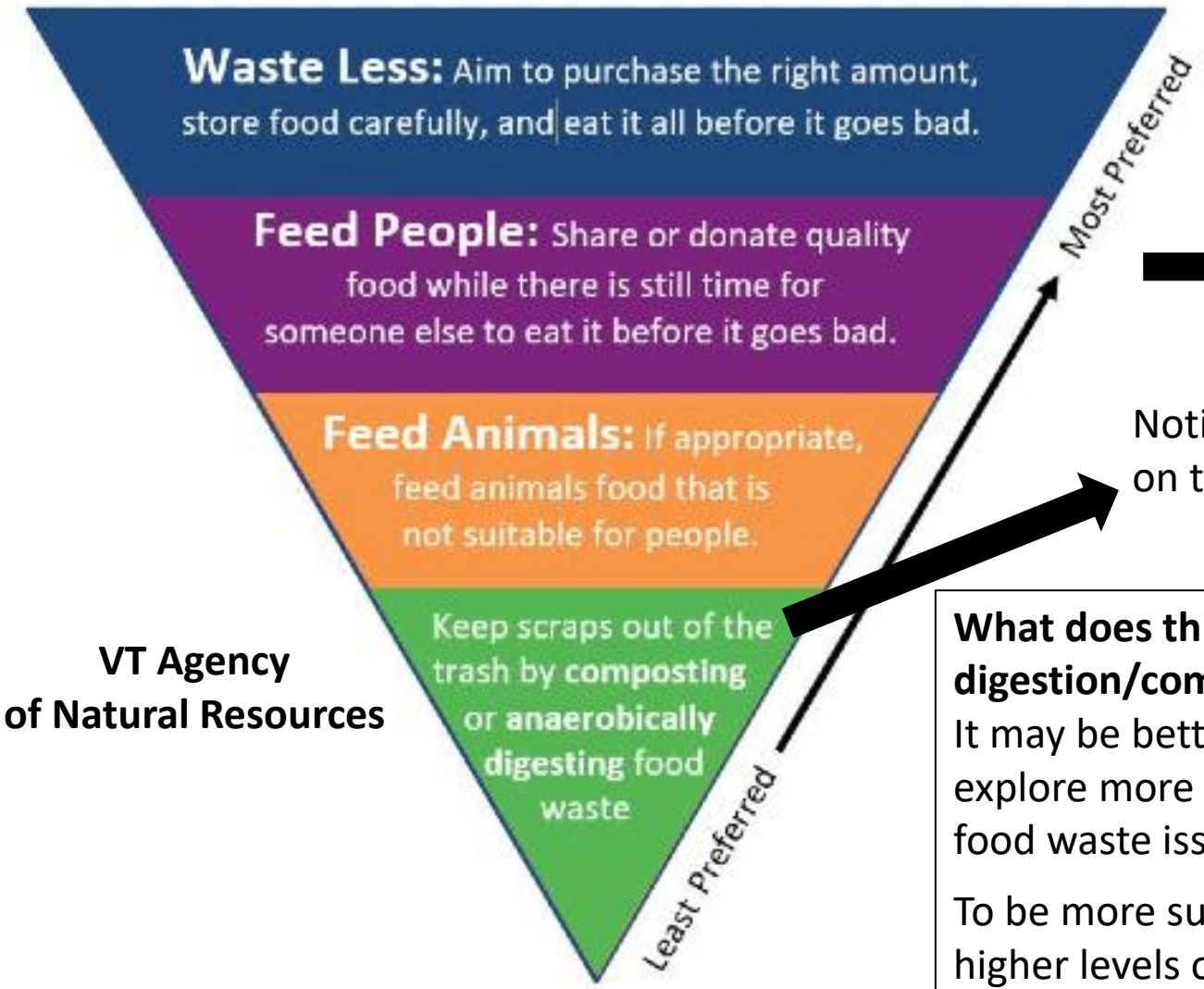
Vermont's Priorities for Food & Food Scraps



VT Agency of Natural Resources

→ Your school is already operating on this priority level!

→ Supports school community members in need, and local food shelves/community meal centers.

Notice where **composting & anaerobic digestion** are on the priorities.

What does this reveal about anaerobic digestion/composting food waste?
It may be better than landfilling, but maybe we should explore more sustainable options for addressing the food waste issue!

To be more sustainable, we need to continue to focus on higher levels of *VT's Priorities for Food & Food Scraps.*

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Vermont Public, August 5, 2024: "*Four years into food scrap landfill ban, Vermonters are diverting just over half of food waste*"

"Food scrap waste has decreased slightly since a law banning it from landfills went into effect four years ago, according to a recently-released report* from the state.

*2023 VT Waste Composition Study

Food scrap waste tonnage in the landfill decreased 13% since 2018. Food scraps make up about the same share of landfill waste as before because the amount of garbage overall has also decreased.

"It's hard to say that there's a significant difference, but it is demonstrating some progress," said Josh Kelly, solid waste program manager at the Vermont Department of Environmental Conservation. "I would say, in short, there's promising data and we have more work to do."

Additionally, for the first time, the state has an estimate for the percentage of food waste kept out of the garbage: between 50.7% and 56.8%. That number is sum of the combined effort of residents, businesses, waste haulers, and manufacturers.

For households, the most common way to divert food waste, by far, is by composting, with 43% of households reporting they composted food waste, either at home or with municipal waste services."

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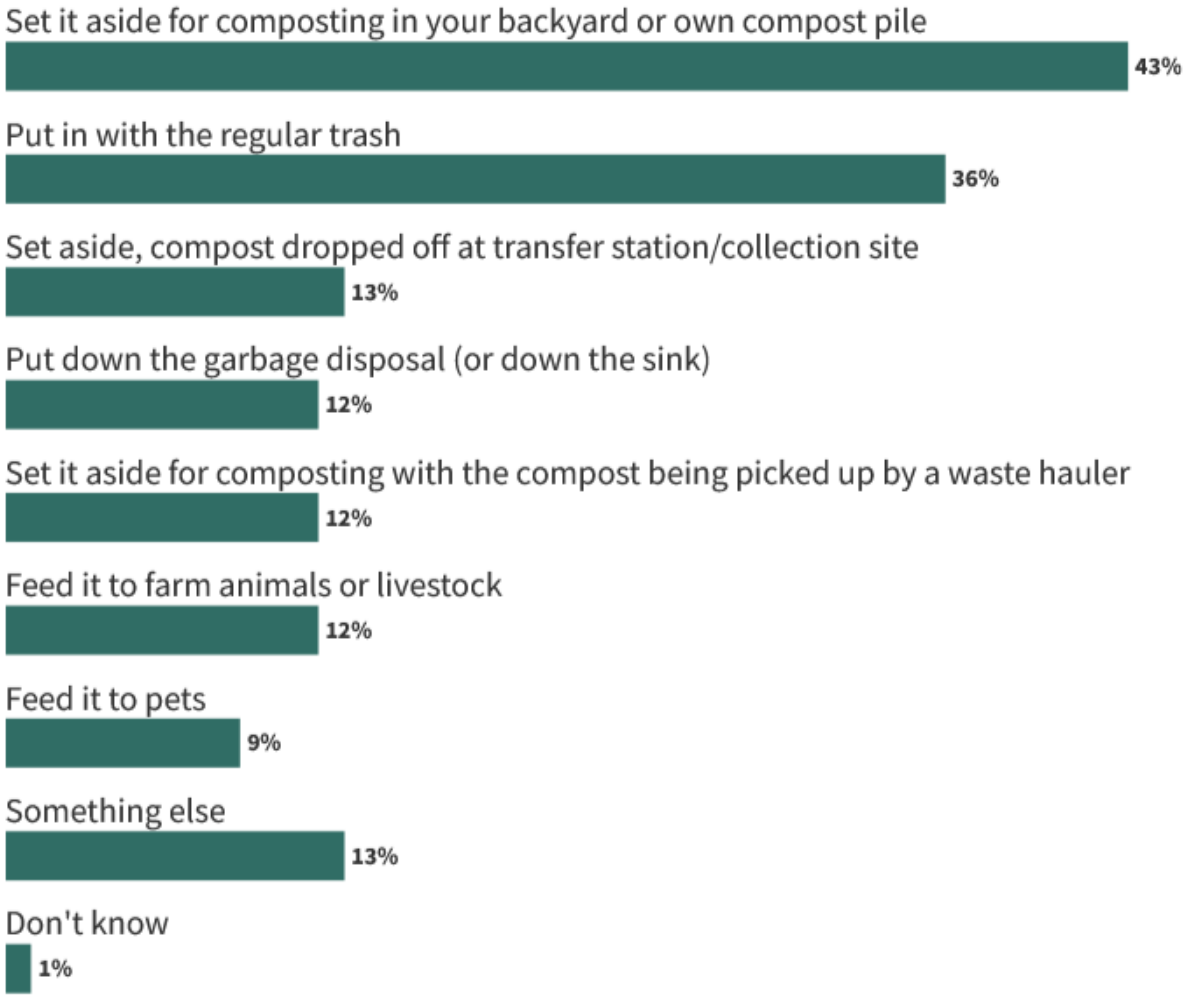
2023 VERMONT WASTE COMPOSITION STUDY

Most Vermonters say they compost at home or transfer stations

Q: What does your household do with food waste that comes from eating or preparing food including any scraps, inedible parts, and spoiler or rotten foods? (Select all that apply)



Source: Vermont Department of Environmental Conservation • N = 953, MoE = ±3.17%

Corey Dockser / Vermont Public

What Can You Do to Make a Difference?

Support your local food pantry

Gleaning Community Harvest of Central VT and other Farm-to-School opportunities

Look for opportunities to enhance food scrap diversion at school, including classroom collection

Request to talk to Facilities staff about classroom food scrap collection

Request to talk to Food Services Staff regarding their efforts to reduce food waste in your cafeteria

Participate on a Green Team

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Lastly, meet Abe…