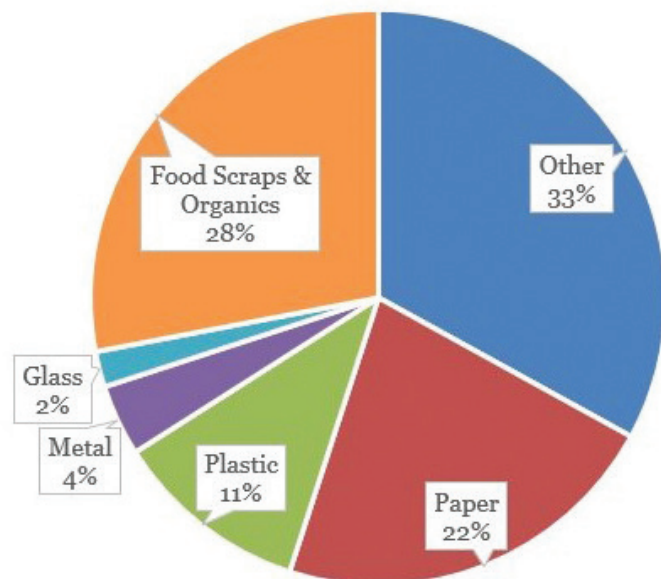




COMPOSTING FOOD WASTE: HOW TO GET STARTED IN THE NORTHEAST KINGDOM

A significant portion of the waste people dispose of includes organic material, such as food scraps and leaf and yard debris. In a recent study analyzing Vermont's waste stream, food waste contributed to 28 percent of the waste disposed of at the landfill. When organic material is thrown into landfills, it takes up limited space and releases methane, a potent greenhouse gas that contributes to climate change.

In 2012, the Vermont Legislature unanimously passed the Universal Recycling Law (Act 148), which bans the disposal of three major types of waste materials commonly found in people's trash bins. One of these materials is food waste. The food waste disposal ban comes into full effect on July 1, 2020 when it applies to all residential households.



Vermont Waste Disposal Composition in 2012

Benefits of Backyard Composting:

- **Improves soil health**, which can improve water retention and reduce the need to buy fertilizers, compost, and pesticides – saving you money
- **Provides an easy way** to comply with Vermont's 2020 food waste disposal ban
- **Eliminates the need** to store and transport food waste to your transfer station
- **Saves you money** since you will have less trash and need to buy fewer Pay-as-You-Throw bags

One of the ways you can comply with Act 148 is to compost food waste yourself at home. Composting organic materials is a natural process of recycling them back into the environment, simultaneously keeping the material out of the landfill and reducing your waste generation and environmental impact.



Composting at Home

Some residents already compost their yard waste and food scraps at home. Others are hesitant to start because of misconceptions. They may think that home composting is too complicated, smelly, and messy. It is actually relatively easy (and inexpensive) to do if you follow the approach outlined in this guide.

What Can I Compost?

For best results, follow the 1:3 Rule. For every one part of green material that you add to your compost, top with three parts of brown material. The green materials provide nitrogen and moisture for your compost and the brown materials provide carbon.

- **“Green Material”** = Food scraps, such as fruits and vegetables, nuts, eggs shells, bread crusts, coffee grounds, tea leaves, old herbs and spices, fresh cut green grass, and more.
- **“Brown Material”** = Yard waste, such as dried leaves, dried grass, and woodchips. You can even add things like paper napkins; clean sawdust or shavings; and pet fur/hair.

Start slow - do not add meat, bones, fish, fats/grease/lard/oils, and dairy to your backyard compost pile. Once you gain more experience, you can try adding these if you choose.

Visit www.nekwmd.org/compost.html for a list of transfer stations and other collection sites that may take some of these food wastes that are more difficult to compost.

Do NOT add household animal (e.g., cat/dog) wastes as they can harbor dangerous bacteria and other pathogens.

How Do I Get Started?

Before you get started, you will need:

- A container to do your composting in or a designated area to pile compost outside if you do not want to use a bin (see the table on pages 4 & 5 for information on the various types of compost containers).



- A supply of “brown” yard waste materials to add into the compost. You could use a separate bin located near your compost container, a leaf bag (keep it dry in a shed or garage), or just accumulate a pile of leaves, grass, plants, and other vegetative material.
- A small container to collect food scraps (“greens”) in your kitchen. A container with a lid, such as a Tupperware container, will reduce odor. There are also stainless-steel and ceramic units that include a carbon filter to reduce potential smells.





What If I Don't Have a Backyard?

If you live in an apartment building or in another situation where you don't feel you can set up an outdoor compost system, you can still compost your food scraps. There are two great options for indoor composting: vermicomposting and Bokashi systems (see table on page 5 for more information). Benefits of indoor systems:

- Deal only with food wastes ("greens") so you don't need to worry about having the "browns"
- Are small and can fit almost anywhere – in a closet, cabinet, shelf, or the basement
- Produce small amounts of compost that can be used for indoor plants, spread outside on the landscaping, or given to friends and family





Composting Step-by-Step




Follow these basic instructions as best as you can – you do not have to do everything perfectly to gain the benefits of composting at home:

- **Step 1:** Select a dry, shady spot in your yard, preferably near a water source, to set up your compost bin, box, or pile. Before setting up your compost bin, make sure to cover the ground below it with hardware cloth or other barrier material to keep burrowing animals from getting in and place down a 6-12 inch layer of browns to allow for maximum moisture drainage and air flow. At the same time, set up a yard waste ("browns") storage site nearby. Finally, set up a small container in your kitchen for collecting food scraps as you peel, dice, and prep.
- **Step 2:** When the food waste container in your kitchen is full (or at any time), bring it outside and toss the scraps into the center of the compost pile/bin. Add a layer of "brown" material from the yard waste storage pile to completely cover the food waste. Note: when you first begin, it's best to start with approximately one cubic yard (3 feet by 3 feet) of organic material so the compost "activates". Using fresh-cut grass clippings is an easy way to increase your initial supply of "green" material.
- **Step 3:** With a pitchfork or shovel, stir the compost every week or two to promote air flow in the pile. This helps prevent smells and speeds up decomposition. If you find the compost starting to smell, add more "browns" to the material – sawdust is especially helpful. You might also need to add water on occasion to provide enough moisture to break down the organic matter. If you have a compost bin that tumbles, you need to spin it on a regular basis to mix up the material to aerate it and reduce the smell.
- **Step 4:** Depending on how often you add material to the compost, how moist it is, and how well you mix it, you should have usable compost in about 9-12 months. The finished product should be dark brown or black and have an earthy smell. Use it to enrich home garden soil and flower beds; place around trees, shrubs, and other plant areas where you might otherwise add mulch or rocks; or spread it on problem areas on your lawn to improve the soil and help grass grow. If you don't have a yard, offer it to a neighbor or give it to friends and family.

Choosing a Compost System

There are several options to choose from when deciding how to set up a home composting system.

TYPE OF COMPOST CONTAINERS		BENEFITS	CHALLENGES
No Bin (static compost pile/heap) Helpful hints available at: www.maine.gov/dep/sustainability/compost/backyard_composting.pdf		Least expensive and least amount of effort	Can be messy if material is not properly contained Can attract animals and other pests because it is open – don't set up the pile close to your home Requires more space than other options Can take longer to produce finished compost
Do-It-Yourself Bin/Box Directions for a three-bin system are available at: www.rodalorganiclife.com/garden/how-to-build-compost-bin		Numerous material and design options – many are less expensive than purchasing a pre-fabricated composter A three-bin system allows sorting and separating of compost at various stages so that you can use some of it quicker	Can be time consuming to purchase materials and construct Requires stirring and mixing to make good compost A three-bin system takes up more space than other designs
Compost Bin (pre-fabricated, usually with a cover)		NEKWMD sells “Soil Saver” brand bins at cost (about ½ the retail price) Other options are relatively inexpensive and widely available online and at garden centers and hardware stores Keeps heat in and rainwater out (helps maintain proper composting conditions)	Has a fixed capacity – depending on the quantity of food waste you generate, you might need to use two Requires stirring and mixing to make good compost
Compost Tumbler (a barrel shaped bin mounted on a stand and usually fitted with a crank for turning)		Available online and at local garden centers and hardware stores Reduces/eliminates problems with animals and other pests because it is off the ground	Cost can vary widely depending on the style and size Requires rotating the tumbler, which can be difficult if the system retains moisture and gets heavy or freezes in the winter Has a fixed capacity – depending on the quantity of food waste you generate, you might need to use two

TYPE OF COMPOST CONTAINERS	BENEFITS	CHALLENGES
<p>Solar Digester</p> <p>(a unit with a basket installed below the ground surface and a two-walled component above ground that takes advantage of sunlight to provide heat)</p> <p>Information online, including at: www.planetnatural.com/composting-101/compost-digesters</p>	 <p>Efficiently breaks down food scraps, even meat and bones</p> <p>Designed to be animal-proof</p> <p>Low maintenance – no turning or mixing required</p>	<p>Does not take yard waste</p> <p>Does not produce compost or any usable by-product</p> <p>May be more expensive to purchase than other compost bin systems</p> <p>Requires installation in well-drained soils in a relatively sunny location</p>
<p>Vermicomposting</p> <p>(composting with worms)</p> <p>Information online, including at: www.planetnatural.com/composting-101/indoor-composting/vermicomposting</p>	 <p>A great option for indoor composting</p> <p>Small size - can set up in a closet or in the basement</p> <p>Worms speed up the decomposition of organic materials</p> <p>Creates a compost richer in nutrients that helps improve a soils' biological, chemical, and physical properties more than other composts</p> <p>Minimal odor</p>	<p>Requires “Red Wiggler” worms that you can order online or get from NEKWM</p> <p>Not appropriate for outdoor use – the worms can only stay alive in temps ranging between 50-80 degrees F</p> <p>Worms are sensitive to moisture and ventilation changes and require some maintenance</p> <p>Some people don't like handling worms</p>
<p>Bokashi Composter</p> <p>(a sealable 5-gallon bucket with a packet of “Bokashi” mix containing anaerobic microbes) - is a fermentation process, not true composting</p> <p>Information online, including at: www.planetnatural.com/composting-101/indoor-composting/bokashi-composting</p>	 <p>Another indoor option</p> <p>Breaks down everything including meat, bones, dairy, and greasy/oily foods</p> <p>Decomposition is fast (typically 10-14 days)</p> <p>Fits in small spaces</p> <p>Minimal odor (air-tight)</p>	<p>Produces an acidic “pre-compost” that needs further curing – can add to a regular compost pile or mix with soil and let sit outside for 2 weeks before using</p> <p>Requires ongoing purchases of the “Bokashi” mix</p> <p>Once bucket is full it needs to sit unopened for 10-14 days, so multiple units are needed</p>



Where Can I Buy Home Composting Supplies?

Locally:

- NEKWMD sells “SoilSaver” compost bins at low cost (about ½ of their retail price): (802) 626-3532
- Agway in Lyndonville sells a compost tumbler made by Jack’s Rain Barrels and Composters (a South Hero, Vermont company): (802) 626-5538

Order online (or at the store) & pick-up at the local store:

- Home Depot in Littleton, NH (www.homedepot.com)
- True Value in Lyndonville & West Danville (www.truevalue.com)
- Aubuchon in Saint Johnsbury (www.hardwarestore.com)
- Ace Hardware in Island Pond (www.acehardware.com)

Order Online:

- Compost Bins and Tumblers: Gardener’s Supply (a Burlington, Vermont company): www.gardeners.com
- Solar Composters: Green Cone (www.greenconeusa.com) & Algreen (www.allgreenproducts.com) are the most popular brands
- Vermicomposting: call NEKWMD at (802) 626-3532
- Bokashi Composter: <http://thebokashibucket.com>

Watch out for Contamination

Although biodegradable and compostable food ware and other packaging has become popular recently, most of these materials are not designed for home composting. They are also not accepted at transfer station drop-offs in the Northeast Kingdom. Generally compostable food ware is made of “vegetable-derived plastics”, and they require very high heat and lots of air flow to break down, which is achieved only through a large-scale commercial composting process.

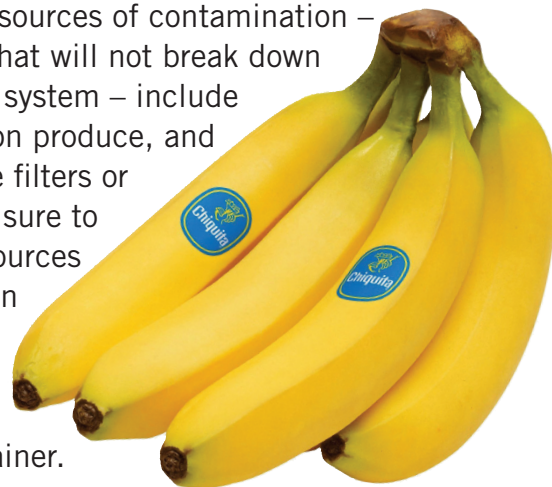


In order for paper and other food service products to effectively break down in a backyard compost system, they need to be made entirely out of uncoated paper or plant fibers. For example, some paper towels include plastic or other non-paper materials to increase their durability or absorbency. Paper plates are also commonly coated with plastic.



Read the labels on the products you buy to make sure they are certified compostable by the Biodegradable Products Institute (BPI) and/or indicate that they are third party tested and “meet ASTM standards for compostability”.

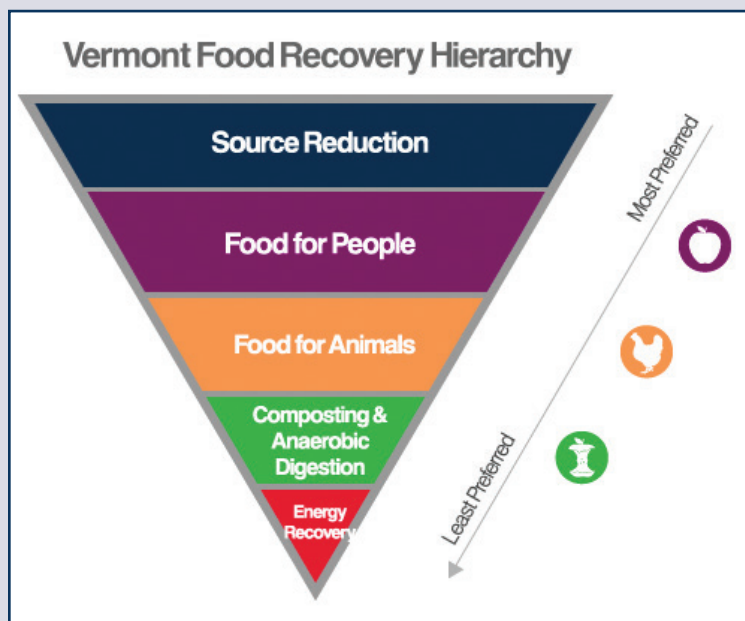
Other common sources of contamination – that is, things that will not break down in any compost system – include stickers found on produce, and synthetic coffee filters or tea bags. Make sure to remove these sources of contamination before putting your food waste in your kitchen collection container.





Food Recovery Hierarchy

Vermont's "Food Recovery Hierarchy" prioritizes actions that people can take to prevent food waste.



Composting is the fourth tier of the hierarchy but still an important one – because even when all other actions to reduce food waste are tried, some inedible and undesirable food parts remain. The next best thing for keeping these food scraps out of landfills is to compost them. Composting will nourish the soil and grow the next generation of crops, which will in turn result in food to feed more people and animals, continuing the cycle.

NEKWMD and NEWMOA's handout on source reduction – "Reducing Food Waste: Tips to Save You Money" is available at: www.newmoa.org/solidwaste/projects/food/Reducing_Food_Waste_Template.pdf.

NEKWMD is involved in local efforts to increase food donation – the "Food for People" tier. Please contact NEKWMD for more information about how you can get involved: (802) 626-3532.

Food Composting Alternatives

If you try home composting and find it's not for you, there are two other options.

Transporting Your Food Scraps to a Transfer Station

One option is to bring your food waste to your local transfer station, recycling center, or other designated facility. In addition to the fruit and veggie scraps you can compost at home, drop-off facilities typically accept the following harder to compost materials:

- Meat and bones
- Fish and seafood shells
- Milk, cheese, and other dairy products
- Dressings, condiments, and sauces
- Flour, bread, pasta, and pastries
- Oils and fats

All transfer stations in the Northeast Kingdom allow residents to bring their food scraps for composting. For more information, including exact location and hours, visit: www.nekwmd.org/compost.html.

Close the Loop

COMPOST

Put these items in the Compost Tote at your local NEKWMD Transfer Station

- Meat & bones
- cheese & other dairy
- Fruits, vegetables & peels
- Soups & sauces
- Dressings & condiments
- Flour, bread & pastas
- Nuts and shells
- Oils & fats
- Eggs & egg shells
- Spices
- Seafood and shells
- Milk, juice, and other liquids

These items cannot be composted:

- PLU stickers
- Milk & orange juice cartons
- Compostable bags, utensils, and cups
- Store bought floral products

If you are unsure about composting a specific item, contact: outreach@nekwmd.org

Additional Resources:

- NEKWMD: www.nekwmd.org/compost.html
- EPA: www.epa.gov/recycle/composting-home
- Vermont DEC: <http://dec.vermont.gov/waste-management/solid/materials-mgmt/organic-materials>
- Maine DEP: www.maine.gov/dep/sustainability/compost/index.html
- NEWMOA: www.newmoa.org/solidwaste/projects/food/index.cfm



NEWMOA is a non-profit, non-partisan interstate association whose membership is composed of the state environmental agency programs that address pollution prevention, toxics use reduction, sustainability, materials management, hazardous waste, solid waste, emergency response, waste site cleanup, and underground storage tanks, and related environmental challenges in Connecticut, Maine, Massachusetts, New Hampshire, New Jersey, New York, Rhode Island, and Vermont (www.newmoa.org).

The document was developed by NEWMOA with input from:

- *Northeast Kingdom Waste Management District (NEKWMD)*
- *Vermont Department of Environmental Conservation (VT DEC)*
- *Androscoggin Valley Council of Governments (AVCOG)*
- *Maine Department of Environmental Protection (ME DEP)*
- *Lakes Regional Planning Commission (LRPC)*
- *New Hampshire Department of Environmental Services (NH DES)*



www.nekwmd.org

NEKWMD and NEWMOA developed this guide as part of a “Promoting Strategies to Keep Food Waste Out of Landfills” training and technical assistance Project. The purpose of this initiative is to reduce the generation of wasted food by households, promote backyard composting, and evaluate the feasibility of food rescue and donation in rural areas of Maine, New Hampshire, and Vermont. For more information about this Project, visit: www.newmoa.org/solidwaste/projects/food/reduction.cfm.

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