

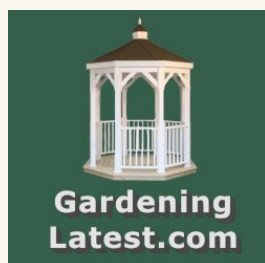


A PRACTICAL GUIDE FOR THE RESIDENTIAL GARDEN

COMPOSTING

FOR HOME GARDENERS

Methods, measured plans and everyday problem solving



Good compost starts with what you have

Your peelings and fallen leaves can become something your garden needs. A useful compost system fits the waste you produce, the space beside your shed and the work you can manage. This guide helps you choose that system, set it up and recognise when the finished material is ready for the soil.

For a first attempt, start with one covered garden bin and a supply of dry leaves or torn cardboard. Choose a worm bin for small amounts of kitchen waste. Choose bokashi only when you have a place for its second stage.

Find the page you need

Choose a method	3	Trench composting	17
The basics and a working recipe	4	Bokashi bucket process	18
The phases of composting	5	Vermicomposting	20
Choose a site and arrange your bins	6	Leafmould, sheet composting and tumblers	22
What is compostable	7	Troubleshooting	23
What to leave out or handle separately	8	Weather, pests and safer handling	24
Cold composting	9	Curing and checking maturity	25
Hot composting and turning	10	Using your finished compost	26
Passive composting vs active composting	12	First month checklist and compost log	27
No-turn methods	13	Sources and design notes	28
Perforated pipe plans and instructions	14		

Read the dimensions as practical examples. Metric sizes are the working measurements, with rounded imperial equivalents. Timings are planning ranges, not harvest deadlines. Finish tests matter more than the calendar.

Choose a composting method

Match the method to your waste and the work you can repeat.

Method	Best fit	Work and likely timing
Cold bin	Regular garden trimmings and plant-based kitchen scraps	Add small batches. Little turning. Often 6-18 months, sometimes 2 years.
Hot batch	Enough mixed material to fill roughly a 1 m³ bay	Build in one go. Check temperature and turn as needed. Plan about 3-5 months including curing.
No-turn bin	Gardeners who want to reduce lifting	Prepare a loose mix. Keep vents clear. Similar to cold composting unless heat is monitored and maintained.
Trench	A vacant bed with diggable, well-drained soil	Dig, bury and mark each batch. Breakdown can take 1-12 months.
Bokashi	Mixed food scraps and access to a finishing area	Fill and seal the bucket, then ferment for at least 2 weeks after the last addition. Allow several more weeks or longer in soil or compost.
Worm bin	Small, steady quantities of suitable food scraps	Feed lightly and check bedding. First harvest often 3-6 months. A full bin can take longer.
Leafmould	A surplus of fallen leaves	Moisten and store. Usually 1-2 years. Tough leaves can take longer.

Two systems can solve one household problem

A cold bin can take garden waste while a small wormery handles kitchen peelings. A pair of bokashi buckets needs a separate place for finishing each batch. Keeping the jobs clear prevents an indoor container from filling faster than you can empty it. Begin with one method, learn its limits and add another only when you know what is being left over.

The basics of composting

Composting turns organic waste into a stable soil amendment through the work of living organisms. In a garden heap, microbes need carbon for energy, nitrogen for growth, moisture and oxygen. The finished compost helps soil hold water and form a better structure. Garden compost is different from a complete potting mix, so it usually joins other materials when used in containers. [1,2]

DIAGRAM 01 / A STARTING MIX MEASURED BY LOOSE VOLUME



Begin with two or three buckets of browns to one of greens

Use dry leaves, chopped stems and torn plain cardboard as browns. Mix them with vegetable scraps, soft fresh trimmings or grass clippings. Measure with the same bucket and avoid packing it down. A 3:1 mix is a useful starting point, then adjust for how wet and dense the ingredients are. Fresh grass needs plenty of loose browns around it. [1]

Check	What you want	What to change
Moisture	A squeezed handful feels like a wrung-out sponge	If it crumbles dry, mix in water. If water streams out, add dry browns and open the structure.
Texture	Small pieces with visible gaps between them	Tear cardboard into roughly 2-5 cm pieces. Break up clumps. Retain some chopped stems for air spaces.
Smell	Earthy or mildly plant-like	A sour or rotten smell calls for less water and more air. Ammonia often means excess greens.

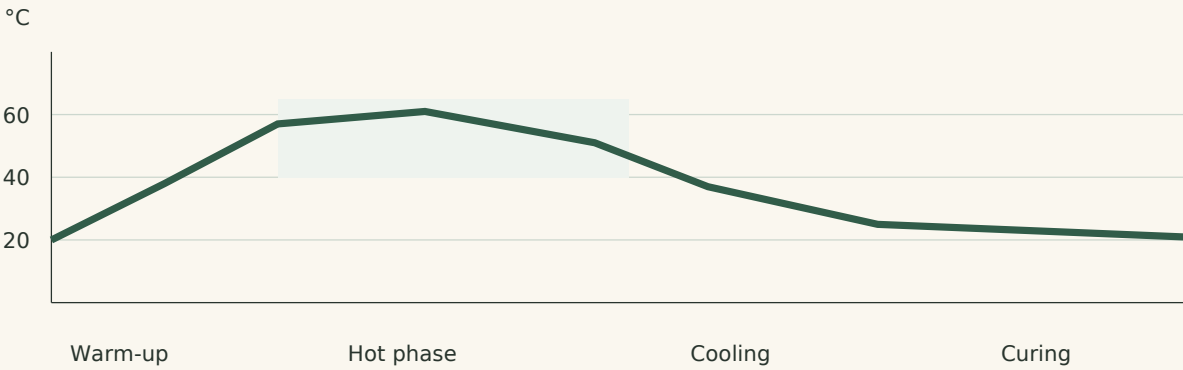
The often-quoted carbon-to-nitrogen target of about 30:1 is a chemical ratio by weight. It does not mean 30 buckets of leaves to one bucket of scraps. Each ingredient already contains both elements. You can make good home compost without calculating them. [4]

Sources: [1] US EPA | [2] Royal Horticultural Society | [4] Cornell University

The phases of composting explained

DIAGRAM 02 / ILLUSTRATIVE HOT-BATCH TEMPERATURE CURVE

Time varies with the pile and weather



A well-built hot pile warms as microbes feed. Moderate-temperature organisms begin the work, followed by heat-loving organisms once the material rises above roughly 40°C (104°F). A useful home hot-composting band is about 50-65°C (122-149°F). As available food declines, the pile cools. Turning can produce another rise by mixing fresh material and oxygen into the centre. [3,5]

Stage	What happens	Your job
Warm-up (mesophilic)	Easy-to-digest material starts breaking down	Check moisture and pile size. Give the batch time to respond.
Hot phase (thermophilic)	Heat-loving microbes take over	Read a long probe thermometer. Turn or loosen a pile that is getting too hot.
Cooling	The strongest heating activity subsides	Check whether the pile is dry or compacted before deciding it is nearly finished.
Curing	Slower decomposition continues near air temperature	Stop adding fresh waste and allow the material to mature.

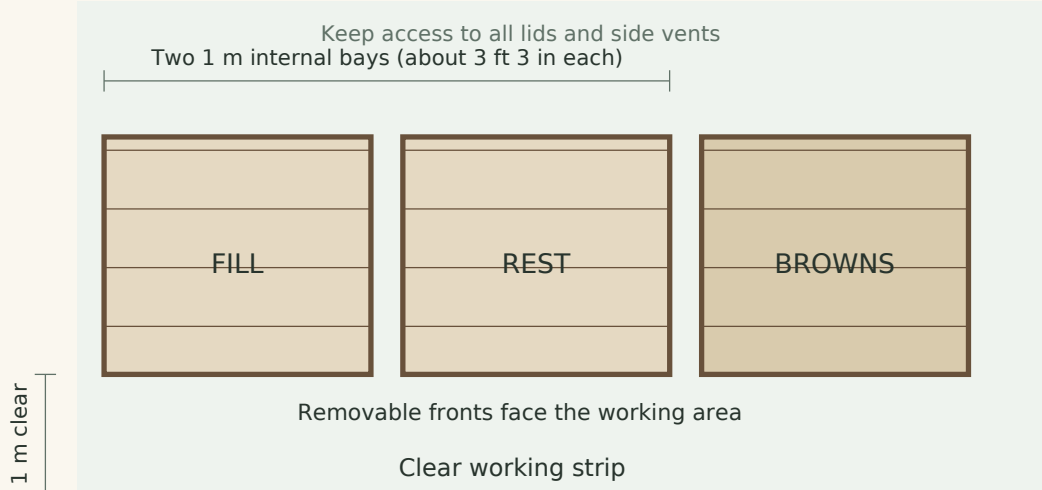
These stages overlap. Cooling and curing are often described together as a single maturation phase. A cold heap or worm bin may never have a sustained hot phase. Bokashi follows a separate fermentation process.

Sources: [3] Cornell University | [5] Cornell University

Set up a useful compost corner

Choose a level, sheltered spot you can reach in wet weather. Put the bin near a water supply and leave room to lift its lid, remove the front and load a wheelbarrow. A shaded or partly shaded position reduces drying. Good drainage matters more than full sun. Keep the bin off the fence itself, with access to inspect the gap behind it. [1,2]

DIAGRAM 03 / A SIMPLE COMPOST CORNER IN PLAN VIEW



A practical starting kit

Gather a covered bin, a lidded kitchen caddy, a container for dry browns and a watering can with a rose. A garden fork helps with mixing and harvesting. A long compost thermometer is useful for hot batches and pipe-equipped bins. Gloves, a tarp for sorting and a coarse garden sieve complete the setup. Buy the thermometer before buying compost additives.

Plan for the finished material

Two bins let you feed one while the other rests. About 1 m x 1 m x 1 m internally gives each example bay a capacity of 1,000 litres, or roughly 35 cubic feet. Smaller bins still work for cold composting. For a ready-made bin, follow its assembly instructions and secure the lid. A removable front makes harvesting easier than reaching over a high wall. [7]

On soil, fit firmly attached metal mesh with openings no larger than about 6 mm (¼ in) beneath a food-scrap bin. Join it to the sides without gaps. On paving, manage drainage so liquid cannot reach a drain, path or neighbouring property. [1]

What is compostable

This list is for an ordinary outdoor garden bin. Other methods have different limits.

Material	How to prepare it	Use it as
Fruit and vegetable scraps	Remove stickers, ties and packaging. Chop large pieces. Bury each addition.	Greens
Coffee grounds and paper filters	Break up compressed pucks. Mix through other ingredients.	Grounds are greens, despite their brown colour
Fresh grass clippings	Add small amounts mixed with leaves or chopped dry stems. Never dump a dense wet mat.	Greens
Soft prunings and spent plants	Cut long stems. Use healthy material without ripe weed seeds.	Greens when fresh and soft
Dry fallen leaves	Moisten if dusty. Chop tough leaves. Keep some in reserve.	Browns
Plain corrugated cardboard	Remove tape, labels and staples. Tear or shred. Keep pieces loose.	Browns
Plain uncoated paper	Tear into strips and blend with other materials. Avoid compact wads.	Browns
Untreated twigs and wood chips	Use modest quantities for structure. Sieve out large pieces later.	Browns
Tea leaves	Empty the tea into the bin. Add the bag only when its plastic-free composition is confirmed.	Leaves are greens
Crushed eggshells	Crush to reduce visible fragments. They can remain recognisable long after the rest is ready.	Mineral addition, not a main brown

A varied mix is easier to manage than a bin full of one ingredient. Keep browns beside the bin so they are ready when you empty the kitchen caddy. Cover fresh food with about 10-20 cm (4-8 in) of browns, drawing back the cover and replacing it each time you feed. [1]

What to leave out

Keep out of a normal home pile	Why
Meat, fish, bones, dairy and greasy food	They can attract animals. Use an accepted food-waste collection or a suitable enclosed process.
Dog or cat faeces, pet litter, human waste and nappies	Home garden methods do not provide a verified treatment for these wastes.
Plastic, glass, metal, foil and produce stickers	They contaminate the finished material. Remove them before composting.
Painted or preservative-treated wood, coal ash and barbecue briquettes	They can introduce unwanted chemicals. Keep even clean wood ash separate from a beginner recipe.
Diseased plants, seeded weeds and invasive roots	Cold edges and uneven heating can let problems survive.
Herbicide-treated lawn waste and suspect hay or manure	Some weedkillers persist through composting and can damage crops.
Glossy or plastic-coated paper, receipts and dryer lint	Coatings and synthetic fibres make these poor choices for a garden compost bin.

Materials that need a separate decision

Small amounts of plain cooked rice, pasta or bread can break down, but exposed food attracts pests. Beginners are better off routing these to bokashi or an accepted collection. Citrus and onion scraps are fine in a varied outdoor pile, although a small wormery is easier to manage without them. Add untreated sawdust sparingly and mix it well. [1,12]

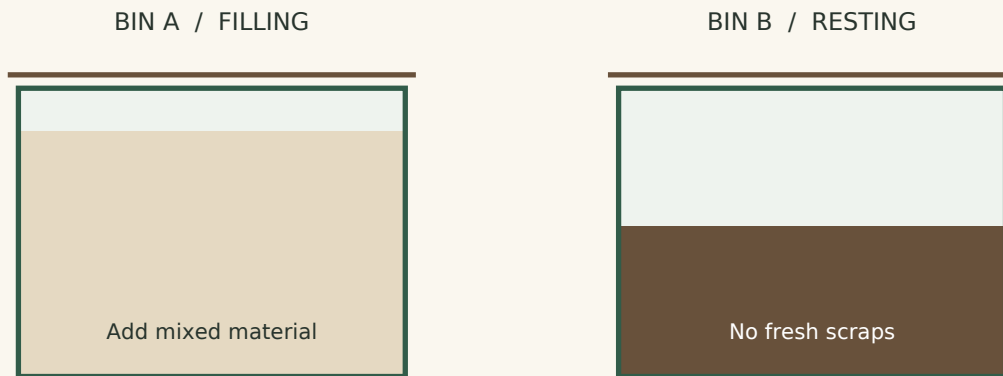
A label that says “compostable” does not mean an item will break down in your garden. Industrial compostable packaging needs the conditions and acceptance rules of a suitable facility. Even home-compostable products should follow their specific instructions. Keep unknown packaging out. Manure is optional. If you use it, choose a known source and follow local edible-crop guidance. [1,18]

Cold composting

A steady, low-work way to handle ordinary garden waste.

DIAGRAM 04 / FILL ONE BIN WHILE THE OTHER RESTS

Swap roles after Bin B is harvested



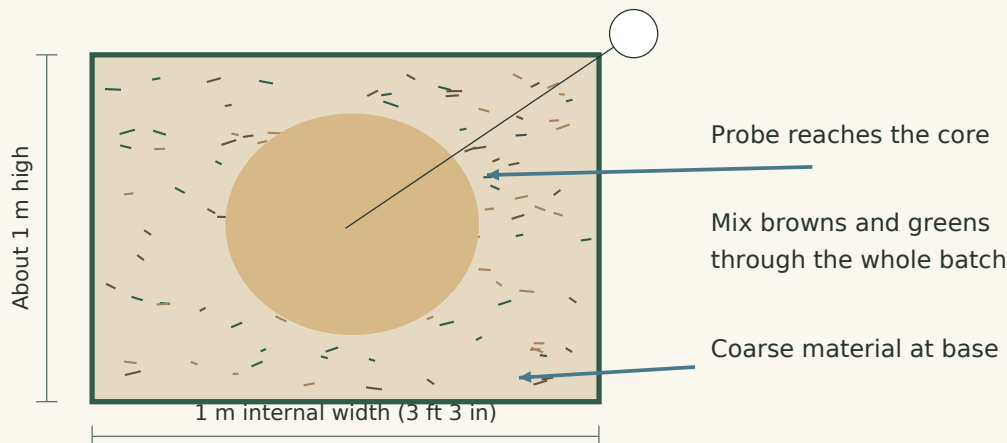
- 1 Put the bin on its prepared site. Add roughly 10-15 cm (4-6 in) of coarse browns at the base, then begin adding a mixed supply of browns and greens.
- 2 Each time you add scraps, open a pocket in the existing material, mix in loose browns and replace the surface cover. Break up grass clumps before they go in.
- 3 Check moisture about weekly at first. Look below the dry surface. Water a dry mix gently in stages. If the heap is soggy, work in dry, coarse material rather than adding more scraps.
- 4 When the bin is full, stop feeding it. Mark the date and begin another bin. Let the first batch settle and decompose. Turning is optional while the pile remains loose and smells normal.
- 5 Harvest only the dark, crumbly material that passes the checks on page 25. Return tough stems to the new pile. Give the harvested material at least four weeks to cure if it still needs finishing.

Cold composting often takes 6-18 months. A small, woody or cool pile may take two years. A bin that is topped up forever contains material of many ages. Its lower contents may be ready while the newest additions are still fresh, so inspect what you harvest. Do not assume the whole bin has matured together. [1,2]

Build a hot compost batch

Collect enough material first, then mix and fill the bay in one session.

DIAGRAM 05 / APPROXIMATE 1 m³ HOT BATCH AND THERMOMETER POSITION



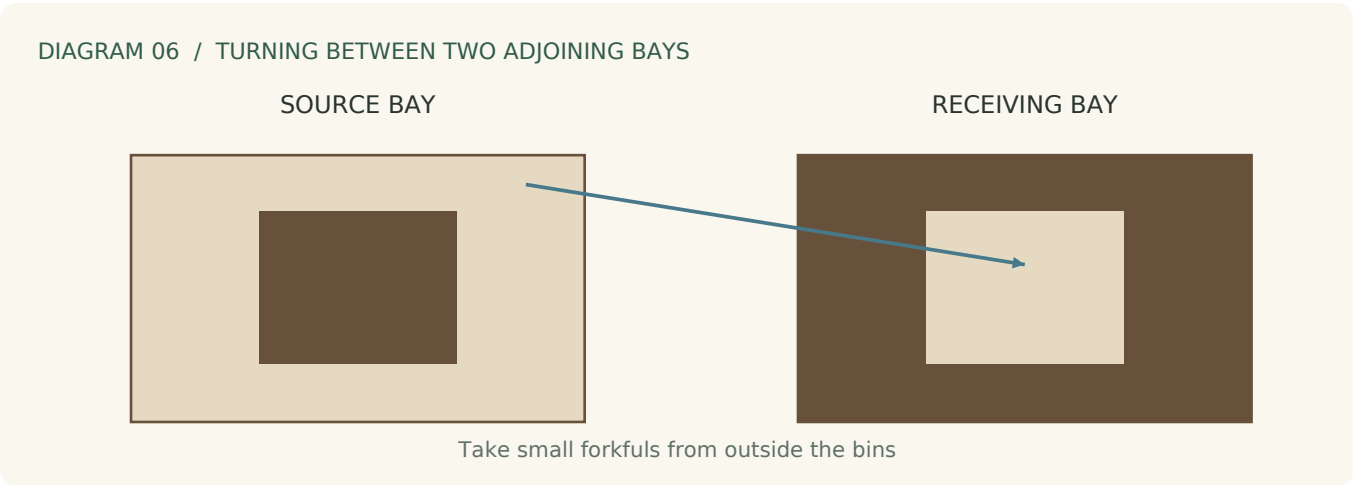
- 1 Set aside roughly 1,000 litres of loose mixed ingredients for a 1 m³ bay. As a starting estimate, allow 650-750 litres of browns and 250-350 litres of greens. The mix will settle, so gather extra browns.
- 2 Chop tough material to about 2-5 cm (1-2 in). Keep some coarser stems. Mix batches on a tarp so wet greens are spread through the browns instead of forming separate solid bands.
- 3 Start with a coarse base. Add the mixed material in manageable lifts. Dampen each lift and check a handful. Fill loosely without treading on the pile.
- 4 Fit a rain cover that leaves air routes open. Insert a long probe into the core, wait for a stable reading and record it. Keep measuring at similar depths and positions.
- 5 Stop adding fresh waste to this batch. Put new scraps in another bin. Mixing in new feed later can restart the process and makes the finishing date harder to judge.

These volumes are a planning example, not a guaranteed chemical recipe. Mostly dry wood chips will not behave like shredded leaves. A small bin may need insulation or may be better managed as a cold system.

Manage heat and turn the pile

A hot batch often warms within several days. Read the centre daily during the first week, then often enough to catch a rising temperature. Check more than one position because the outside can stay cool. Plan around 3-5 months for an ordinary managed home batch, including curing. A rapid collapse in volume is only the beginning of the finishing process. [1]

Reading or condition	Response
About 50-65°C (122-149°F)	The pile is actively heating. Watch moisture and the temperature trend.
Rising above about 65°C (149°F)	Loosen or turn to release heat. Check for dry pockets and moisten during rebuilding.
Cooling after an earlier hot peak	Turn once, bringing outside material inward. Check moisture before deciding the food supply is exhausted.
Still cool after rebuilding	Check size, moisture and the mix. If scraps remain, correct the problem. If it is mature and does not reheat, begin curing.



Work from firm ground outside the bins. Remove the front boards, then transfer small forkfuls. Put the old outer material into the new centre and move the old centre towards the outside. Break up mats as you go. Water dry material during rebuilding. Avoid turning every day by habit, since repeated disturbance can lose heat and moisture. [5,8]

A single hot centre reading does not prove that every part reached a time and temperature needed to destroy weed seeds or pathogens. Keep high-risk inputs out of home batches. Never add composting worms to a hot pile.

Sources: [1] US EPA | [5] Cornell University | [8] NC State Extension

Passive composting vs active composting

Passive and active describe how you manage the process. Cold and hot describe its temperature. These choices overlap: a carefully mixed static pile can heat without turning, while a tumbler can be turned often and still remain cool because it holds too little material. Decide how much handling you can do before deciding how fast you want the compost. [6]

Question	Passive approach	Active approach
How does air enter?	Through spaces, vents and sometimes perforated pipes	Turning or mechanical aeration renews the air supply
When is work done?	Mostly when preparing, adding and harvesting	At setup, with more checks and mixing during decomposition
How much equipment?	A ventilated bin, cover and loose browns may be enough	A fork or tumbler, space to turn and often a thermometer
How even is the batch?	Edges and dense pockets can lag behind	Turning redistributes material, moisture and temperature
How quickly is it ready?	Usually slower, with a wider finishing window	Can be faster if the volume and mix support heating
What happens if it goes sour?	You may still need to open or rebuild it	Adjust moisture and browns while mixing

Reduce lifting where it counts

Keep the kitchen caddy small. Store browns at the same height as the bin opening and use a lightweight scoop. Choose a bin with a removable front so you can harvest at ground level. A low heap spread over more space is easier to reach, though it loses heat faster. Trench composting removes the turning job but adds digging. A fully loaded tumbler can also be heavy.

Choose a routine you will keep

If you only visit the bin once a week, choose a patient system. If you have a large seasonal cutback and want to manage temperatures, make a separate hot batch. Leave enough space for the finished compost to rest. The best arrangement is the one that handles your next bucket of waste without making yesterday’s batch harder to finish.

Sources: [6] US EPA | [15] South Carolina Department of Environmental Services

No-turn composting

Reduce routine turning by preparing air spaces that stay open.

No-turn composting leaves the main pile in place as it breaks down. You still sort the ingredients, manage moisture and harvest the result. Oxygen moves through gaps between pieces. A dense mass of wet grass or kitchen scraps can lose those gaps, so a no-turn method needs careful loading. Passive pipes help provide air routes, but the material around them must stay open. [5,6]

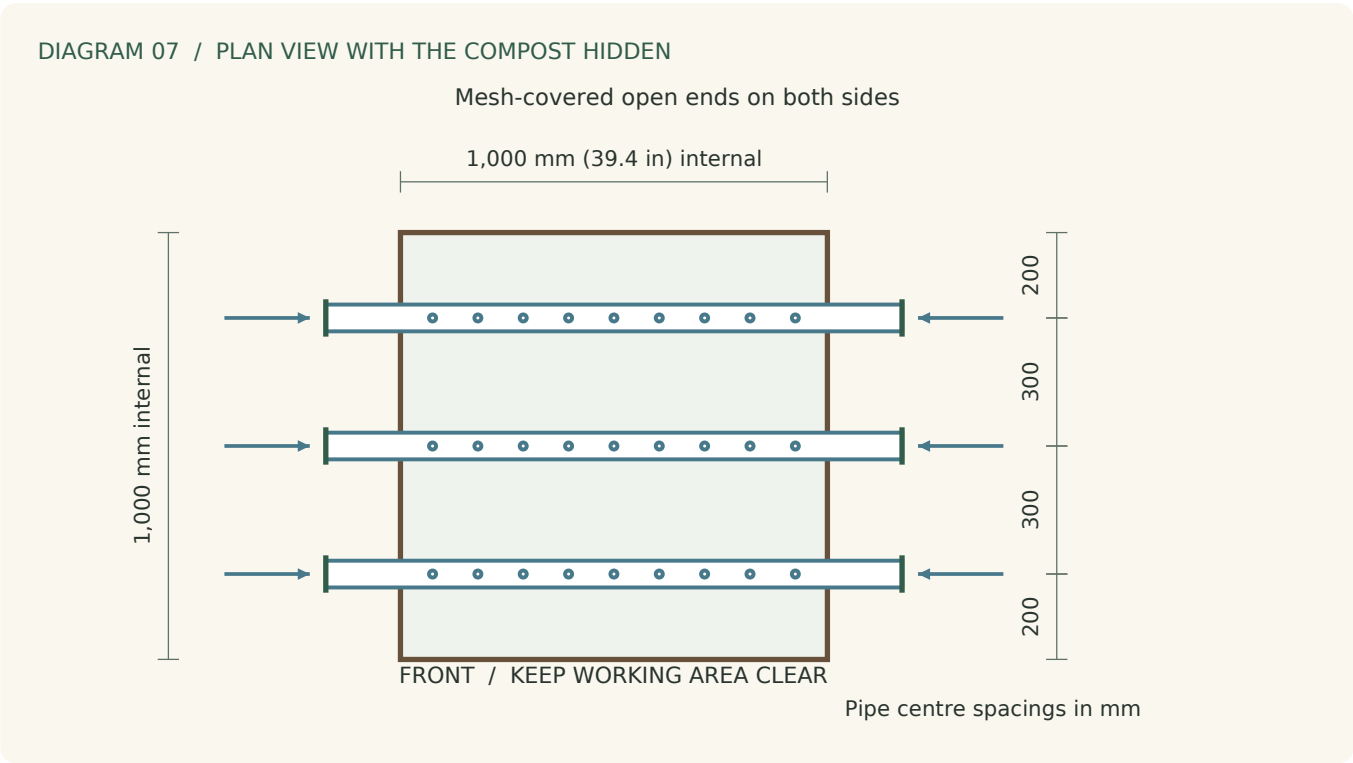
Approach	How to do it	What to watch
Loose cold bin	Mix chopped stems and other browns into every addition. Add a ventilated cover.	Fine material can settle into a wet layer. Check below the surface.
Fill-and-rest bays	Fill one bay, stop adding and leave it to finish while another receives waste.	Label dates. Keep fresh waste separate from the resting batch.
Perforated horizontal pipes	Place removable pipes low in the bin, with both ends outside and screened. Plans follow.	Holes can clog. Short narrow pipes provide limited passive airflow.
Temporary air channels	Build around a few upright smooth poles, then withdraw them to leave vertical passages.	Channels can collapse as material settles. Cover the pile against heavy rain.
Central mesh chimney	Build a loose batch around a firmly supported, capped-edge mesh cylinder open to air above.	Leaves can block the mesh. Protect exposed sharp wire and avoid packing the surrounding mix.
Leaf-only storage	Keep damp leaves in a wire cage or perforated reusable bag.	Allow a longer wait. The product is leafmould.

“No-turn” is a workload choice, not a promise that a heap will never need attention. If it turns sour or becomes saturated, pause feeding and rebuild the affected material with coarse browns. Waiting alone may not fix lost air spaces.

Sources: [5] Cornell University | [6] US EPA | [13] Royal Horticultural Society

A no-turn bin with perforated pipes

An example for a bin with a 1,000 x 1,000 mm internal footprint.



Run three removable pipes from side to side, with centres 200, 500 and 800 mm from the inside front face. All sit at the same low level. Each end projects about 150 mm (6 in) beyond the outside wall. Both ends remain exposed and screened. The drawing shows spacing, not a measured airflow rate.

Part	Example specification
Pipes	3 lengths, nominal 40-50 mm (about 1½-2 in). Length = external bin width + 300 mm.
End screens	6 removable metal mesh covers. Openings at most 6 mm (¼ in). Secure with corrosion-resistant clamps.
Wall openings	Fit to actual pipe diameter. Close gaps against rodents. Keep pipes removable.
Base and supports	Coarse woody material and low supports to prevent sagging without blocking drainage.

The pipes carry air only. Keep food out and never connect them to a sink, drain or fan. Keep extensions away from walking routes, with access for cleaning.

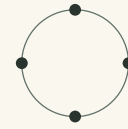
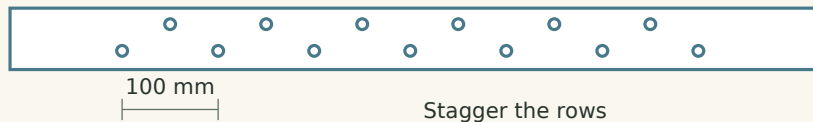
Sources: [5] Cornell University | [6] US EPA

Prepare and fit the pipes

DIAGRAM 08 / EXAMPLE PERFORATION PATTERN, NOT TO SCALE

Undrilled ends

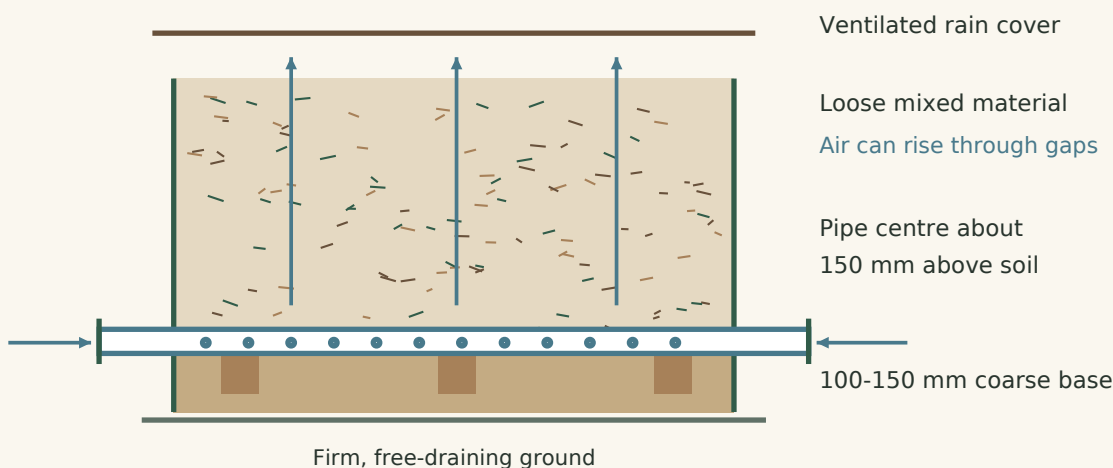
Drill only inside the bin



4 rows around pipe

- 1 Use clean, sound pipe with a known temperature rating. Cut to fit your bin and mark its inside wall positions. Leave projecting ends undrilled.
- 2 Clamp the pipe on a workbench. Wear eye protection. Drill 8 mm (about 5/16 in) holes at roughly 100 mm (4 in) centres along four rows around the part inside the bin. Offset neighbouring rows by about 50 mm. Avoid making a single ring of closely spaced holes.
- 3 Deburr the inside and outside of every hole. Catch and dispose of all plastic shavings, then rinse the pipe away from the garden bed. Fit removable mesh across both ends. Test that the screens stay secure.
- 4 Fit the pipes through the side walls, with their centres about 150 mm (6 in) above ground. Support them at the sides and near the middle so wet compost cannot bend them. Surround them with loose coarse material, then add the prepared mix.

DIAGRAM 09 / SECTION ALONG ONE PIPE WITH POSSIBLE AIR ROUTES



Keep the top ventilated beneath its rain cover. Natural warming can help air rise through the material, drawing replacement air from lower openings. A cool pile has a weaker driving force. Blue arrows show possible routes, not guaranteed flow through every part of the heap. [5]

Keep a pipe-equipped pile working

Check the plastic before the pile gets hot

Kitchen waste pipe may be PVC, ABS or polypropylene, with different temperature limits. For example, Charlotte Pipe lists a maximum operating temperature of 60°C (140°F) for its PVC systems and applies the limit to external heat as well as pipe contents. That is close to hot-compost temperatures. Check the exact product rather than assuming all white pipe is suitable. [17]

Use ordinary PVC only in a cooler pile kept comfortably below its stated limit. For a product rated to 60°C, this guide uses 50°C (122°F) as a conservative action point: stop feeding and loosen or reduce the pile if it approaches that temperature. For a planned hot batch, choose pipe confirmed suitable above the expected temperature, or use deburred corrosion-resistant metal.

Load for air spaces

Mix the feed before loading. Wet grass and food scraps should be distributed through leaves and chopped stems. Avoid a deep band of fine sawdust, a sheet of soggy cardboard or any layer you have pressed flat. Fill to around 0.8-1 m (32-39 in) above ground for this example and keep the surface covered. The pipe system has no way to force air through a dense wet pocket.

When	Check and action
After building or a large addition	Check core temperature daily while the batch is warming. Also check near the pipes if possible.
Weekly once stable	Inspect exposed ends, screens, cover and moisture below the surface. Clear leaves, webs and splashed soil from the openings.
If you notice a sour smell	Stop feeding. Check drainage and compaction. Open and rebuild the affected material with dry coarse browns.
When emptying the bin	Remove pipes, clear the bores and perforations, rinse and inspect for cracks or distortion. Replace damaged parts before refilling.

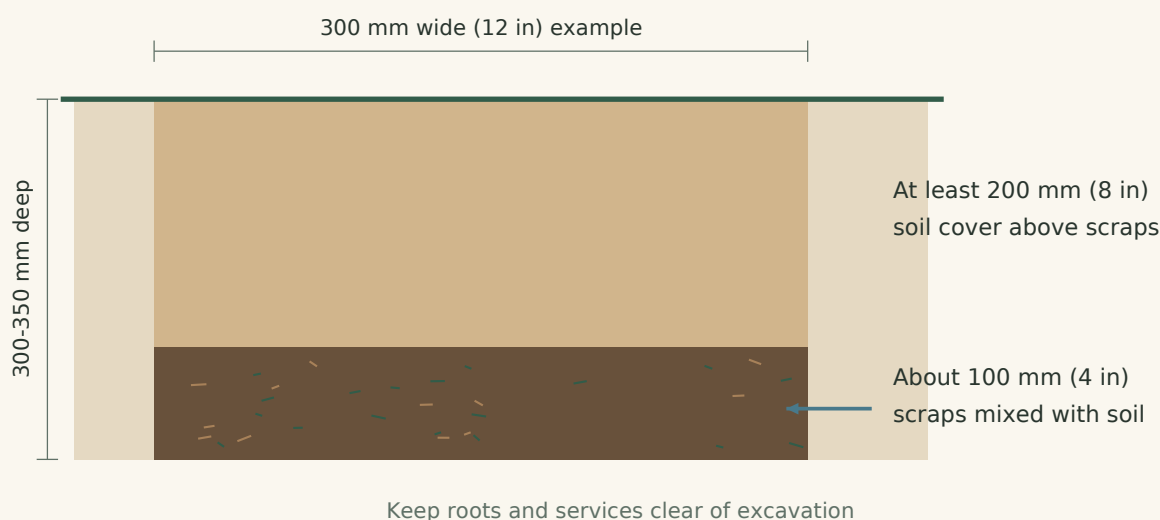
Larger bores can be easier to clean, but changing the pipe diameter does not prove that the pile will aerate evenly. Treat this as a simple home trial. If it needs repeated rescue, reduce wet feed, add more structure or return to a loose cold bin with occasional mixing.

Sources: [5] Cornell University | [6] US EPA | [17] Charlotte Pipe and Foundry

Trench composting

Bury a small batch where the soil can break it down in place.

DIAGRAM 10 / CROSS-SECTION THROUGH A SMALL FOOD-SCRAP TRENCH



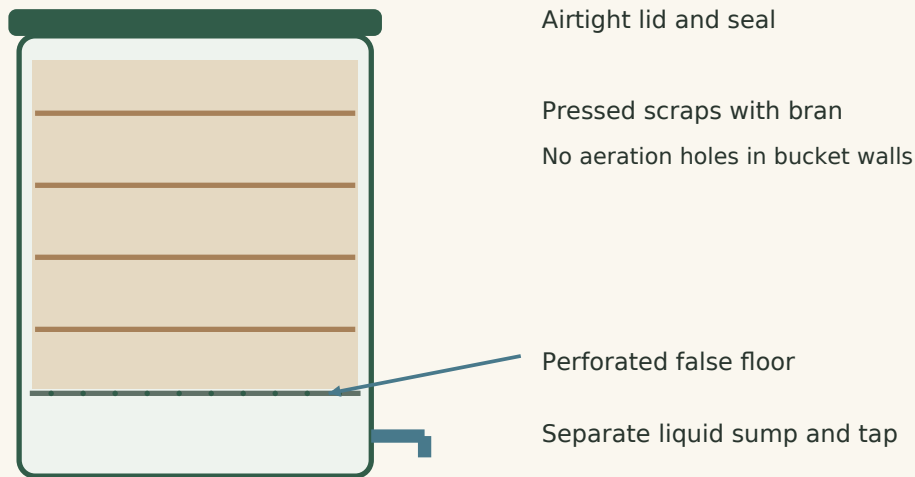
- 1 Choose an empty part of a bed that drains well. Keep clear of existing roots, buried services and places animals regularly dig. Avoid saturated ground and areas close to wells or watercourses.
- 2 Dig a short trench roughly 300-350 mm (12-14 in) deep and about 300 mm wide. Put the excavated soil beside it. Short sections are easier to fill and cover the same day.
- 3 Add about 100 mm (4 in) of chopped plant-based scraps mixed with some soil. Use vegetable peelings and other soft waste. Keep meat, dairy, grease and pet waste out.
- 4 Replace at least 200 mm (8 in) of soil above the scraps. Gently settle the surface without stamping it into a hard cap. Mark the position and date so you do not dig into it by mistake.
- 5 Allow the scraps to decompose before planting directly over the trench. Check a small edge section. If recognisable food or a sour smell remains, backfill and wait longer.

Buried waste breaks down under lower-oxygen conditions than an open heap. It can take one month to a year, so preparing an unused bed for a later season is easier than promising a planting date. Rotate the burial area. If scraps are exposed by rain or digging animals, restore the soil cover or switch to a secured bin. [9,14]

The bokashi bucket process

Ferment food in a sealed bucket, then finish it in soil or compost.

DIAGRAM 11 / CROSS-SECTION THROUGH A TYPICAL BOKASHI BUCKET



Typical bucket 15-20 L (4-5 US gal)

Bokashi uses an inoculated bran or similar product in an airtight container. The food becomes acidic and fermented, often with a pickle-like smell. It can still look much as it did when added. You need a second stage before the material is suitable around roots. Choose the finishing route on page 19 before filling the first bucket. [10]

- 1 Use a purpose-made bucket with a sound seal, a false floor and a drain tap. Two 15-20 litre buckets let one ferment while you fill the other. Keep bran dry and follow its label for storage and dose.
- 2 Drain excess liquid from food. Chop large scraps, add a shallow layer and sprinkle bran at the product's stated rate. Bokashi can accept cooked food, meat and dairy, but leave out packaging, large bones, free oil and liquids.
- 3 Press each addition down with a dedicated tool to reduce trapped air. Close the lid firmly after feeding. Keep the outside of the bucket and its seal clean.
- 4 Drain the sump every few days or as the bucket instructions require. Once full, date the bucket and leave it sealed for at least two weeks after the final addition, following the product's temperature instructions.

Sources: [10] NC Cooperative Extension | [20] Arizona Department of Environmental Quality

Finish bokashi before planting

Route A Bury it in a vacant bed

Choose free-draining soil away from established roots. Open a short trench, mix the fermented material with soil and cover it with at least 20 cm (8 in) of soil. Mark and protect the site. Plan for several weeks of further decomposition, with longer waits in cool, wet or heavy soil. Inspect before planting. Recognisable food and a sour smell mean the site needs more time. [9,10]

Route B Add it to a secured compost system

Blend the fermented scraps through an existing batch with plenty of dry browns. Treat them as wet feed, then cover the addition. If the bucket contained meat or dairy, the finishing system must remain protected against animals. A loose open heap is a poor choice. Finish and cure the whole batch before using it. Choose an accepted collection instead when you cannot provide a suitable finishing area.

Bokashi fermentation is not a verified sanitation treatment. Do not put freshly fermented food into planting holes beside live roots or into a worm bin. Do not assume animal-derived scraps become pest-proof when the lid comes off.

What you find	What to do
Pickled smell and recognisable scraps	This can be normal after fermentation. Move to the finishing stage when the required sealed period is complete.
A little white surface growth	It can occur in a working bucket. Check the full picture, including the seal and smell.
Putrid smell, poor seal or extensive coloured mould	Treat the batch as unsuccessful. Avoid disturbing mould indoors. Send it to an accepted waste route or a secured outdoor finishing system, then clean and inspect the bucket.
Liquid in the sump	Drain it. Reduce free liquid in future additions and inspect the false floor and tap.

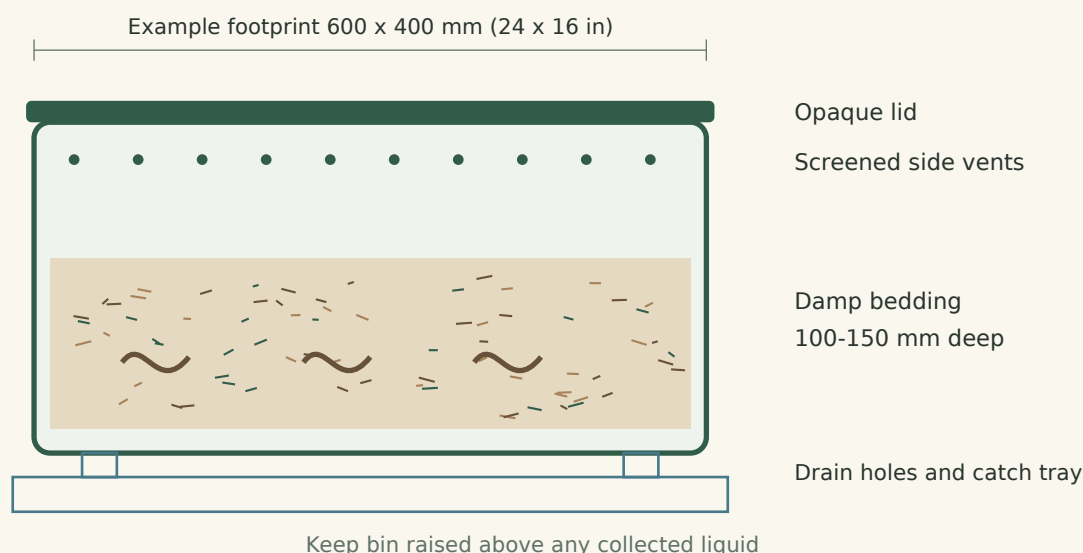
Handle the drained liquid as leachate

Its acidity, nutrients and microbes vary. This guide does not recommend it as a foliar spray or food-crop fertiliser. Add a small amount to a working outdoor compost pile only if that pile needs moisture, or follow local wastewater guidance. Keep it out of storm drains and streams. Dilution does not establish that a liquid is safe.

Sources: [9] Nebraska Extension | [10] NC Cooperative Extension | [20] Arizona Department of Environmental Quality

Start a worm bin

DIAGRAM 12 / A SHALLOW WORM BIN WITH VENTILATION AND DRAINAGE



Composting worms live in decomposing organic matter. Red wigglers, usually sold as *Eisenia fetida* or *Eisenia andrei*, are suitable for a small wormery. Ordinary deep-burrowing garden worms are a poor substitute. Buy a named composting species from a reliable local supplier. Keep the bin out of direct sun and aim for about 15-25°C (59-77°F) within the bedding. [11,12]

- 1 Choose an opaque container about 600 x 400 x 300 mm (24 x 16 x 12 in) for this example. Add screened ventilation holes high in the sides and about six 6 mm drainage holes across the base. Keep an opaque lid.
- 2 Raise the bin on stable spacers above a shallow catch tray. Leave air around it and check that water can escape. Empty collected liquid before it reaches the bin base.
- 3 Soak torn plain cardboard or paper, squeeze out excess water and fluff it into a 100-150 mm (4-6 in) layer. It should feel damp with air spaces, without dripping. Add a small handful of ordinary garden soil.
- 4 Add roughly 500 g (1 lb) of composting worms as a starter colony, then let them settle for a few days. This is a starter amount, not a promise that the bin can process all your household scraps.

Avoid manure or fresh grass in a small beginner wormery because a concentrated addition can heat up. Do not turn or tumble the contents as you would a hot compost pile.

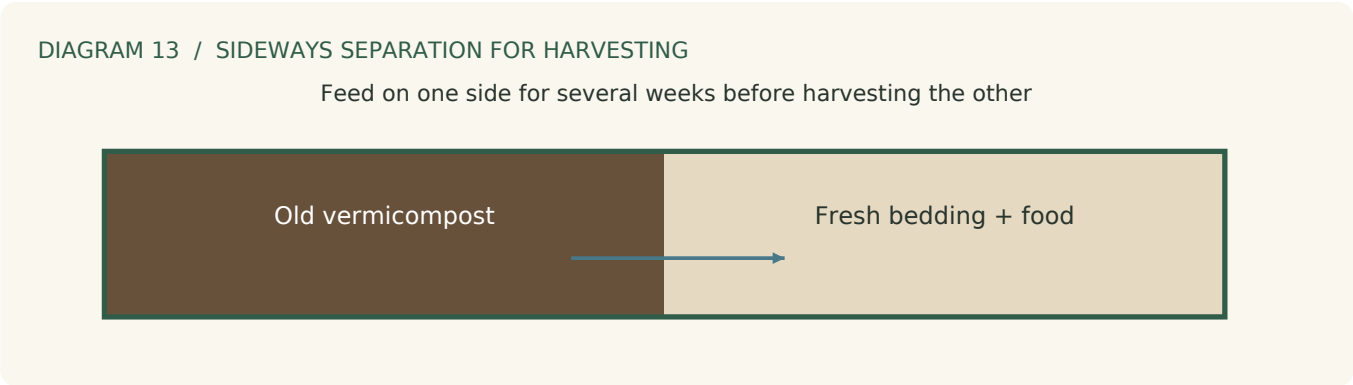
Feed and harvest your wormery

Begin with a small handful of chopped vegetable scraps in one pocket. Cover it with about 5 cm (2 in) of damp bedding. Check after a few days and feed again when most of the previous food has gone. Increase the amount slowly. A new colony may eat much less than a seller’s maximum rate, especially when conditions are cool. Keep a separate route for excess scraps. [1,11]

Feed in small amounts	Keep out of a beginner worm bin
Vegetable peelings, soft fruit, a little coffee and crushed eggshell	Meat, fish, dairy, salty or greasy leftovers and pet waste
Plain paper and cardboard as replacement bedding	Plastic tea bags, coated paper, fresh hot compost and concentrated fertiliser
A varied supply of small pieces	Large doses of citrus, onion or garlic, and a deep mat of any single food

Read the bedding before adding more food

If the bin smells, stop feeding and remove excess food. Add dry torn bedding to a wet surface and check the vents and drain holes. If it is dry, mist the bedding. Worms gathering on the lid or trying to escape can signal heat, waterlogging or other unsuitable conditions. Move the bin to a cooler sheltered spot during hot weather and reduce feeding. [12]



When a dark, soil-like material has built up, place fresh bedding and food at one end. Feed that end for several weeks, then harvest the other side. Hand-pick remaining worms and cocoons back into the bin. The first harvest often takes 3-6 months, but a lightly fed bin can take longer. Return visible scraps for further processing. [1,11]

A healthy worm bin should produce little drainage. Keep leachate away from edible leaves and do not market it as worm tea. Use the finished solid vermicompost in small amounts around plants or as part of a suitable potting mix.

Sources: [1] US EPA | [11] NC State Extension | [12] Royal Horticultural Society | [19] Oregon State University Extension

Other useful ways to recycle garden waste

Leafmould for a garden with plenty of trees

Collect fallen leaves in a supported wire cage or a sturdy reusable bag with drainage and air holes. Moisten dry leaves and close the bag loosely. Keep them in a sheltered place and check for drying. Chopping tough leaves helps, but a shredder is optional. After a year, partly rotted leaves can serve as mulch. A finer leafmould often takes two years, with tough leaves taking longer. Keep it separate when you want to save ordinary compost-bin capacity. [13]

Sheet composting for a future bed

Cut existing growth short and remove persistent weeds. Lay overlapping plain cardboard over moist soil, wet it and cover with thin applications of garden greens and browns. For a simple home version, use garden trimmings and leaves without exposed kitchen food. Keep the material damp and finish with a brown cover. Allow several months, often six or more, before planting. Check that the material has broken down and the bed has settled. [14]

Tumblers for contained batches

A tumbler keeps material together and makes mixing possible without a fork. Leave enough empty space for the contents to fall and mix, following the maker's loading limit. Stop adding when a batch is full, rotate as directed and keep the vents clear. Add dry browns if the contents form wet balls. Small drums may never stay hot for long, so judge readiness by the compost itself. Test the handle when loaded before deciding it suits your strength. [7,15]

Grasscycling and woody mulch

If clippings are short and free of disease or prohibited herbicide residues, leaving them on the lawn avoids filling the compost bin. Large woody prunings are often more useful as chipped surface mulch or as coarse material for a future heap. Do not bury a large quantity of fresh wood chips through a vegetable bed. Keep unknown treated timber out of every garden recycling method.

Countertop machines that dry or grind food produce processed scraps. Most still need a composting or collection stage. Check the output before putting it around plants. [1,6]

Troubleshoot the pile

Check moisture below the surface before adding anything. Then look at the mix and whether air can move through it. A dry top can hide a wet centre. A cool temperature can mean the pile is too small, too dry or nearly finished. Match the response to what you find.

Symptom	Likely cause	First response
Sour or rotten smell	Waterlogging or collapsed air spaces	Pause feeding. Add coarse dry browns, loosen or rebuild and restore drainage.
Sharp ammonia smell	Too much nitrogen-rich material	Mix in carbon-rich browns. Do not add lime or ash.
Dry and unchanged	Too little moisture, often too much woody material	Water in small amounts while mixing. Add some greens if the mix is mostly dry stems.
Cool with fresh scraps remaining	Small volume, poor mix, dryness or compaction	Check each factor. Combine material for a hot batch or accept a slower cold process.
Wet grass clumps or cardboard mats	Too much fine material added together	Pull apart the mats and blend with loose chopped stems and leaves.
Fruit flies	Food exposed near the surface	Bury scraps, renew the brown cover and clean the kitchen caddy.
Rats or digging animals	Food access, gaps or unsuitable inputs	Pause food additions. Check mesh, lid and pipe mouths. Repair entry points.
White threads or fungal growth	Normal decomposers often appear	Usually no action is needed in an outdoor pile. Avoid breathing dust when disturbing it.
Large stems remain in otherwise mature compost	Woody pieces break down slowly	Sieve them out and return them to a new batch.
Heap will not heat after repeated turning	Food may be exhausted or conditions may still be wrong	Check moisture and remaining scraps. If it passes the maturity checks, begin curing.

Change the main cause, then check again after a few days. Adding an activator to a soggy heap will not restore air spaces. If a problem returns, reduce the wet feed entering the system until the bin can cope. [1,8]

Sources: [1] US EPA | [8] NC State Extension

Compost through changing weather

Condition	Adjust the routine
Long wet spells or monsoon rain	Use a secure rain cover with open ventilation. Keep runoff out, raise stored browns off wet ground and check drainage after storms.
Hot, dry weather	Shade the bin if possible. Check moisture inside the heap. Dampen during mixing instead of repeatedly soaking only the surface.
Cold or freezing weather	Expect slower breakdown. Keep a dry-brown supply nearby and cover the bin. A larger batch may hold heat, but small additions can wait until conditions improve.
Very hot weather around a wormery	Move it to a cool shaded space. Check the bedding temperature. Feed less and avoid heat-producing piles of fresh scraps.
A large autumn leaf fall	Store some leaves dry for future mixing and put the surplus into leafmould bags or a cage.

Keep food inside the system

A lid and sound mesh are more dependable than hoping a hot heap will deter animals. Cover every food addition, inspect the base and fasten any loose front panel. A plastic bin with a damaged lid is still an invitation to pests. If rodents persist, stop food additions and use an accepted collection while you repair the setup. Do not place poison or insecticide in compost you will use in the garden. [1]

Make the work comfortable

Wear gloves and wash your hands before handling food. Dampen dusty material before moving it and avoid putting your face into a newly opened bin. Use a well-fitting dust mask when dust cannot be avoided. Take small forkfuls from stable ground and keep children clear of open lids, exposed screws and cut wire. Secure a hinged lid so it cannot fall while you work. [2]

Steam can rise from warm compost in cool air. Smoke, charring or a burning smell requires a different response: move away and contact the local fire service. Do not disturb a suspected smouldering heap.

Know when compost is ready

Compost can look dark before it has finished breaking down. Give it time after the strongest activity ends. Stop adding fresh material and keep the resting batch slightly damp, sheltered from heavy rain and open to air. Allow at least four weeks of curing after a managed pile stops reheating. A woody batch can need much longer. [1]

Check	Ready for ordinary garden use	Needs more time or correction
Appearance	Most soft inputs are unrecognisable. Texture is loose and crumbly.	Visible food, slimy clumps or a large amount of fresh material.
Smell	Earthy or mild	Sour, rotten or ammonia-like.
Temperature	Near air temperature, with no strong reheating after mixing and moistening	A renewed rise shows that active breakdown is continuing.
Moisture	Damp enough to handle without dust	Bone-dry material may appear inactive only because it lacks water.
Plant response	A small trial grows comparably to its control	Poor growth, twisted leaves or stunting need investigation.

Try a small comparison before using a large batch

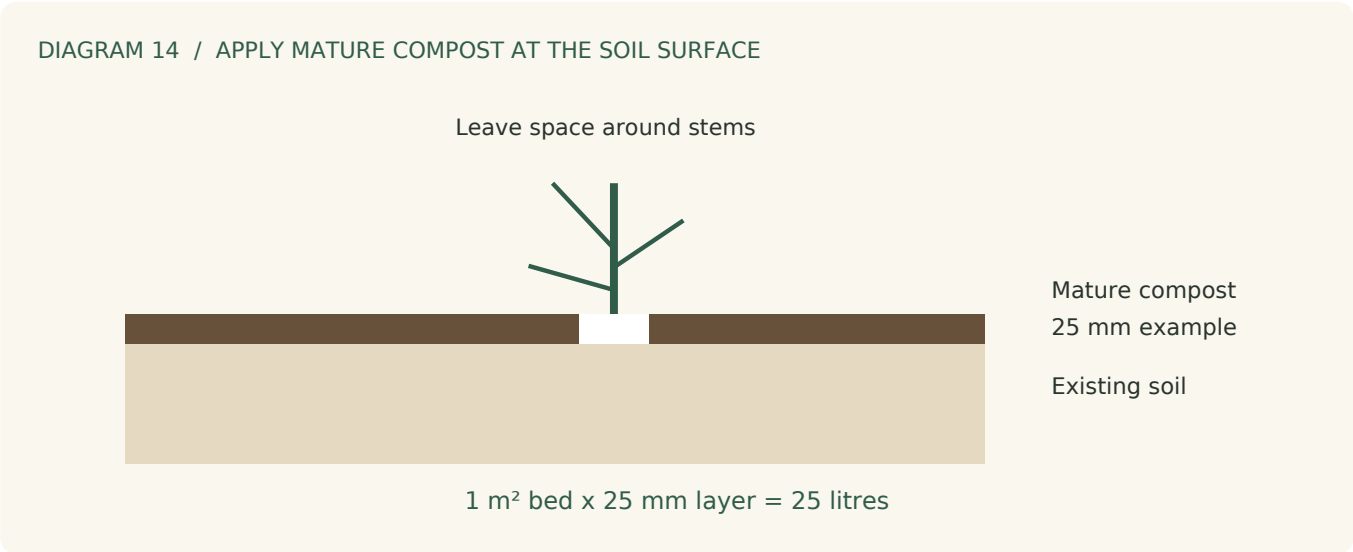
Fill three small pots with your normal potting mix and three with the same mix containing about 25% of the finished compost by volume. Sow the same number of quick-growing seeds in each. Keep light and water similar. Compare germination and growth over two to three weeks. This is a practical screening check, not a laboratory test or proof that the compost is free of pathogens.

Treat suspect herbicide residues separately

Some persistent herbicides can arrive in hay, grass or manure. Ask about treatment history before accepting these materials. If sensitive plants develop distorted growth, isolate the compost and follow a local extension bioassay method using a clean control. Do not spread a suspect batch around the garden to dilute it. A quick germination test alone may miss this problem. [18]

Sieve only when it helps the job. A 10-20 mm screen is often enough for bed compost. Send coarse plant fragments back to a new pile and remove every piece of plastic, glass or metal.

Use the compost you have made



Use mature compost to improve the soil where it is needed. Spread it around established plants, leaving space beside stems and trunks. For a new bed, it can be worked into the upper soil before planting. Do not fill an entire raised bed with pure compost because it settles and does not behave like a soil-based growing mix. [1]

Use	Practical starting amount
An established vegetable or flower bed	About 10-25 mm (3⁄8-1 in) at the surface when an addition is needed. Adjust for soil tests and past applications.
A new bed with low organic matter	A 25-50 mm (1-2 in) layer mixed through the upper 150-200 mm (6-8 in) of soil, if soil testing supports adding it.
Container mixes	Start with a modest proportion, such as 10-20% mature screened compost by volume, and trial it with your plants. Use a suitable complete mix for sensitive seedlings.
Vermicompost	Use a small topdressing or a modest addition to a container mix. Follow plant needs rather than treating it as a complete fertiliser.

These are starting ranges, not fixed annual doses. Repeated applications can build up phosphorus and salts, especially with manure-based compost. Test soil after several years of additions or if plants struggle. Compost does not supply every crop with the same balanced feed.

Litres needed = area in m² x depth in mm. A 1.2 x 2.4 m bed with a 25 mm layer needs 72 litres. Store compost under a ventilated rain cover, slightly moist.

Your first month and compost log

When	Task
Before starting	Choose the method, prepare the site and set aside a supply of dry browns. Arrange the next destination for a full bucket or bin.
Week 1	Begin with small additions or build one hot batch. Check moisture, smell and access. Measure temperature if managing heat.
Week 2	Adjust the mix using what you found. Look for wet pockets, exposed scraps, blocked vents or unfinished worm food.
Weeks 3-4	Keep the routine steady. Date completed batches and separate them from fresh waste. Review whether the method handles your actual waste volume.

Record observations rather than chasing a deadline

Bin or method _____ Batch started _____

Last fresh addition _____ Curing started _____

Date	Additions / amounts	Temperature*	Moisture / smell	Action taken

*Record the unit and where the probe was placed. Temperature checks are optional for a cold pile and useful for a hot batch or a pipe-equipped bin.

Harvest date _____ Used on _____

What I will change next time _____

Start with a small bucket of suitable scraps and enough browns to mix through it. Keep the routine manageable, then watch what changes in your pile.

Sources and further reading

The links below open the original guidance. Source numbers also appear beside relevant text.

The guide brings together home-composting advice from horticultural organisations, universities and environmental agencies. The measured layouts, trial routines and worksheets are original examples for a residential garden. They are not tested commercial composting designs. Where methods use different rules, follow the instructions for that method and the specific equipment you own.

[1] US EPA

Composting at Home

[2] Royal Horticultural Society

Composting

[3] Cornell University

Compost Microorganisms

[4] Cornell University

Compost Chemistry

[5] Cornell University

Compost Physics

[6] US EPA

Approaches to Composting

[7] University of Minnesota Extension

Composting in Home Gardens

[8] NC State Extension

Extension Gardener Handbook Chapter 2 Composting

[9] Nebraska Extension

Trench Composting A Simple Method of Reusing Kitchen Waste

[10] NC Cooperative Extension

Bokashi Composting

Web guidance checked in September 2026. Home composting does not carry the process validation of a commercial facility. Local collection rules and any conditions attached to a product should be checked directly.

References and design notes

[11] NC State Extension

Worms Can Recycle Your Garbage

[12] Royal Horticultural Society

Worm Composting

[13] Royal Horticultural Society

Leafmould

[14] Oregon State University Extension

Do the Rot Thing Choosing and Using a Composting System

[15] South Carolina Department of Environmental Services

Composting Simple Steps for Starting at Home

[16] Vermont Department of Environmental Conservation

The Dirt on Compost

[17] Charlotte Pipe and Foundry

Plastics Technical and Installation Manual page 29

[18] Oregon State University Extension

Herbicide Contaminated Compost and Soil Mix

[19] Oregon State University Extension

Worm Castings Boost Soil Health With a Simple Home Bin

[20] Arizona Department of Environmental Quality

Bokashi Compost Guide

How to read the plans

Diagrams show component positions and working clearances. They are not all drawn to the same scale. Dimensions take priority over appearance. Pipe bore, material rating, wall thickness and the finished bin dimensions vary by product. The pipe layout is an example of passive ventilation and makes no claim about airflow, guaranteed heating or pathogen reduction.

All technical diagrams were drawn for the guide.