

thereby destroying most—if not all—weed seeds, undesirable insects and plant pathogens.

What happens next is pure simplicity and efficiency! Mass temperature immediately begins to rise until, between 48 and 96 hours later, it has topped out at between 140° and 160° (F). As bacterial decomposition consumes oxygen in the process, air passes through the aeration pipes to replenish supplies. As material quickly decomposes, the pile begins settling. In about seven to ten days, temperatures will have begun to fall until, by the end of about 3 weeks, it should have reached ambient outside air temperature and the pile's mass will have shrunk to a little over half its original size.

There is one small problem, however, which must be dealt with during the high-heat stage.

Because fresh, cool outside air is flowing through the perforated pipes—and therefore into the pile—a small area of the mix near each perforation will remain cool enough to prevent the destruction of seeds and pathogens by heat. To overcome this small handicap, it is recommended that, for one 24-hour day (*only*) about 3 days into the high heat stage, the open ends of each aeration pipe be plugged, thereby allowing high heat to thoroughly penetrate throughout the mix. At the end of this 24-hour period, remove the plugs, and the process continues essentially unaffected by the missing days' worth of air. Wadded-up newspaper makes a good temporary plug.

It's done! Actually, I like to allow the finished product to just sit there for another week or two to *stabilize*. At this rate, given a large enough supply of greens and browns, you should be able to produce nearly a square yard of finished compost every five weeks. You guess what that'll do to the health of your garden—and your success rate!



This photo shows all components of the basic structure assembled and ready to receive the first layer of compost. The front pallet has been removed for a better view.

What *not* to put into the compost pile:

- Metal
- Glass
- Plastic
- Rubber
- Domestic pet waste
- Meat or bones
- Fat or grease
- Mayonnaise, butter, margarine
- Peanut butter
- Or any substance contaminated with pesticides or other chemicals or that may attract animals.

The Essentials of Composting

- *The correct recipe: 1 part GREEN (nitrogen), and 2½ parts BROWN (carbon) mixed together.*
- *The correct particle size: chopped or shredded to no larger than ½".*
- *The correct pile size ("mass"): 3' x 3' x 3' (1 sq. yd.) minimum.*
- *The correct moisture content: It should feel like a wrung-out kitchen sponge.*
- *Adequate air circulation through the pile — either by turning, or by the "passive air insertion" method described in this brochure.*
- *Time . . . and patience.*
- *This passive-air-insertion method develops 155°(F) to 160°(F).*
- *Temperatures above 160°(F) risk total biological collapse (end of all composting activity).*
- *Weed seeds are destroyed after 3 or more days at or above 130°(F).*
- *Most plant diseases are destroyed after 4 or more days at 144°(F).*

This publication is offered free in the public interest by:

Hill Gardens of Maine

107 Route 3, Palermo, ME 04354

The text and photos in this brochure are available free on our web site.

For answers to your gardening questions, visit our extensive gardening information site on the World Wide Web:

www.HillGardens.com

Fast, Biologically Active, Highly-Efficient, No-Turn Compost. . .

From this:



To This:



In 21 Days!

*Presented By
Fred Davis, Master Composter*

Most of the old-fashioned composting methods are actually labor intensive and often a little too slow for my taste and purposes. The pile must be turned to re-introduce air into colonies of oxygen-starved bacteria, fungi and other organisms. There is an easier way which incorporates very nearly all basic composting principles but which vastly improves two crucial factors: *aeration* and *time*.

Here's my system for producing finished "black gold"—fully decomposed, rich, dark, nutrient-saturated, almost totally weed- and pathogen-free organic matter ready to be worked into garden soil—in 21 to 28 days, *with no turning* — **REALLY!**

The Enclosure. A diversity of materials may be used for the enclosure—concrete blocks, timbers, wire mesh or boards, for example—but for economy's sake, I have constructed my "no-turn, self-aerating, 21-day" compost bin from salvaged pallets commonly used by truckers in the transport of equipment or supplies. Other sources of these used—oftentimes perfectly usable—pallets are large hardware stores, plumbing and heating suppliers, lumber yards...and don't overlook your local landfill or waste transfer station. A friend or neighbor who works at large discount stores or on construction sites may be of some help, too. As interest in using recycled or salvageable pallets increases, it is likely that you may have to pay for them. \$5 would not be an unreasonable amount for sound, fully-intact pallets. Most medium-to-full-size automobiles are wide enough in the

trunk to accommodate one or two pallets.

Recall that biological composting does not rely on bright light and sunshine, so you can secrete your bin in a dark corner of the yard, behind shrubbery or "back in the woods" where it won't be seen. Place the least attractive pallet on level ground where you want your compost pile to reside. This base or "foundation" allows air circulation (remember that free air movement is key to the composting process) and prevents tree roots from creeping in and feasting on your compost. You might consider nailing additional narrow strips on this "foundation" pallet between each top-surface board, leaving just enough space for air to pass without difficulty, while preventing your shredded garden wastes from falling through (1/2-inch gaps work for me).



You could also use saplings instead of sawn strips, as in the picture above.

Next, stand the remaining four pallets on edge with the closely-spaced boards *facing inward* and *vertical* (perpendicular to the ground) to form a box *just outside* of the foundation pallet. Lash them together using wire or synthetic cord (so it won't decay in a

few weeks). I've used plastic clothesline cord with lasting results. Later, you'll want to untie the pallet which constitutes the "front" in order to access finished compost—so select your knots carefully.

Allowing For Maximum Air

Circulation. Important to the function and success in this new system are appropriate length sections of salvaged 1-1/4" or 1-1/2" black plastic water or PVC drain pipe. Most discount salvage stores (here in Maine we call them "Mardens") sell such pipe for a fraction of what the same material would cost at a builder's supply.

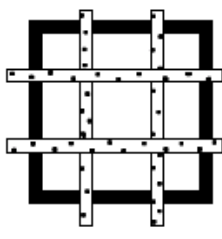


You'll need ten or twelve lengths about 4-1/2 feet long. Use a half-inch "spade" drill bit and an electric drill to create random perforations about every four or five inches all around the pipe. Precise spacing is not important. All right - ready?

Let's assume you've gathered all your shredded "greens" and "browns" and are ready for some serious composting *action*. I like to mix these two main ingredients together before tossing them into the pile. Place a layer of mixed material 4" to 6" deep on the foundation pallet of your new, high-efficiency, low-cost, no-turn composting bin. Make certain that the material's moisture level is adequate (recall that it should feel like a wrung-out kitchen

sponge) and *do not* press the layer down. Place two of your perforated aeration pipes on top of this layer so the cut ends protrude through the side pallets. Space a pipe about 16" in from each side so, when you look down at the layer's surface, it looks as if it's been divided into thirds. Recall that I suggested making the boards in your pallet walls stand *vertical*. Perforated aeration pipes can now slide down freely as the pile settles during the accelerated composting process. Had those boards been placed *horizontal*, your pipes would have hung up, bent—and possibly "kinked"—in a short time. You can guess what that'll do to the flow of air into the pile.

The diagram at the right illustrates the approximate arrangement of the aeration pipes. . . sort of like the game of "Tic-Tac-Toe", you played as a kid.



Now it's time for a second six-inch layer of shredded material followed by a second set of perforated pipe *at right angles to the ones in layer #1, below*. Continue, layer by layer, adding another set of pipes to each layer as you go, until you've reached the top (and the end of your supply of pipes). Remember to alternate the direction of each layer of perforated pipes. It is not necessary to install aeration pipes above the top layer. But it is recommended that you lay on an additional 4" or 5" layer of some coarse, insulating organic material like pine needles or whole leaves. This insulating layer allows generated heat to penetrate all the way to the top of your mixed material,