

## Sheet Composting

### THE ULTIMATE, BOMB-PROOF SHEET MULCH

Sheet mulch can be as simple as a layer of newspapers topped by 8 to 12 inches of nearly any mulch material. But if you want to build the perfect sheet mulch, here's how:

If this is your first sheet mulch, start small. Sheet mulch gobbles up a tremendous amount of organic matter—the roughly 2 cubic yards held by a full-sized pickup truck will cover about 50 square feet. But don't scrimp. It's much better to blanket a small area thoroughly than to spread the mulch too thin to smother weeds or feed the soil properly. Choose a site that's not more than 200 square feet, in the proper location for the intended plants, and preferably near the house. Remember your zones: Deeply mulched beds will soon be covered with a riot of plant life, and you want these awesomely productive areas right outside your door, to harvest the bounty or admire the many avian and insect visitors.

Here's a materials list for the perfect sheet mulch:

1. A 2- to 3-foot stack of newspaper, minus any glossy sections, whose inks contain metal pigments (the black and colored inks on standard newsprint are soy-based and nontoxic), or about 300 square feet of corrugated box cardboard without staples or plastic tape. You can also use cloth, old clothing, or wool carpet, provided they contain no synthetic fabric, but these take far longer to decay than paper.
2. Soil amendments, depending on your soil's needs: lime, rock phosphate, bonemeal, rock dust, kelp meal, or blood meal.
3. Bulk organic matter: straw, spoiled hay, yard waste, leaves, seaweed, finely ground bark, stable sweepings, wood shavings, or any mixture of these, ideally resulting in an overall C:N ratio of 100/1 to 30/1. Grass clippings are also good, but only when mixed with other, "brown" mulches, otherwise their high nitrogen content causes anaerobic—and smelly, slimy—decomposition. You will need about 4 to 8 cubic yards of loosely piled mulch, or 6 to 10 two-string bales of hay or straw.
4. Compost, about  $\frac{1}{4}$  to  $\frac{1}{2}$  cubic yard (6 to 12 cubic feet).
5. Manure:  $\frac{1}{4}$  to 1 cubic yard, depending on the concentration and amount of bedding mixed in. About 6 cubic feet of composted cattle manure or some other bagged product will be plenty.
6. A top layer of seed-free material, such as straw,

leaves, wood shavings, bark, sawdust, pine needles, grain hulls, nut husks, or seagrass. You will need roughly 1 cubic yard or 2 to 4 two-string bales.

If you can't find every item, don't worry. Sheet mulching is very forgiving. As long as you have enough newspaper or cardboard, plus organic matter of almost any kind, you'll end up with great soil. Store your supplies near the chosen site so you won't have to move them too far on sheet-mulch day. Keep them dry, too.

The day before you mulch, water the site well unless the ground is moist from rain. The organisms that will be turning your mulch into rich earth can't work without water, and once the mulch is in place, it takes a lot of water to moisten the bottom layers. Conversely, it takes a long time for the layers to dry out—you've got lots of water storage.

After the water has soaked in overnight, slash down any vegetation. Don't pull up weeds—leave all the native organic matter right there, including the roots. Just clip, mow, scythe, or weed-whack everything down in place. It's great worm food, and the nitrogen-rich greens and roots will be a tasty starter for the decomposers. Remove any stumps or big woody pieces.

Next, add any soil amendments. If your soil is acid, sprinkle on some lime. For alkaline soil, a little gypsum or sulfur will help. A dusting of rock phosphate or bonemeal will supply phosphorus. Greensand, kelp meal, or rock dust will add trace minerals. Use a soil test or your own understanding of your soil's fertility to guide the type and quantity of soil amendments.

If your native earth is clayey or compacted, now is a good time to open it up a bit. Just push a spading fork into the ground, rock it a little, and pull it out. Do this across the entire mulch site. Don't turn the earth, just poke some holes into it and crack it open to allow better moisture and root penetration and soil-critter movement.

Then add a thin layer of high-nitrogen material. This can be manure, blood or cottonseed meal, fresh grass clippings or other lush greens, or cast-off produce from restaurants or markets. For concentrated matter such as rabbit manure or blood meal, sprinkle down enough material to just cover the soil. Grass clippings or bedding-rich manure should go down about an inch thick. While this layer isn't essential, it attracts worms and burrowing beetles, which will aerate and loosen the soil.

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Now the fun begins: putting the sheet in sheet mulch. Lay down newspapers and/or cardboard to create a continuous light-blocking layer that will smother existing plants. Cardboard is very satisfying to use, since those big sheets, especially the ones from refrigerators and other appliances, cover the ground fast. Overlap the sheets by 6 inches or so to keep weeds from sneaking between them. Newspaper should be laid down  $\frac{1}{4}$  to  $\frac{1}{2}$  inch thick.

As you spread out the sheets, wet them thoroughly from a hose. You'll want to do this frequently if a breeze comes up—watching your sheet mulch flap away is pretty demoralizing. Soak the sheets several times to make sure the water seeps through. If you're sheet mulching with a group, this is when hose-fights usually erupt, tugging any well-orchestrated work-party toward mayhem. Try not to walk on the paper, especially after it's wet, as this pulls the sheets apart and creates gaps. Pretend you're painting a floor: Start at one end and work toward the opposite side so you won't walk on your work.

Next, toss down another thin layer of nitrogen-rich manure, meal, or fresh green clippings. This will entice the worms up through the soon-to-be rotting sheets, and coax plant roots downward.

On top of this, pour on the bulk mulch, about 8 to 12 inches of loose straw, hay, leaves, or any of the other substances listed above. Weed seeds in this layer aren't a big concern, as a thick, seed-free stratum lies atop this one. Weed seeds seem to rot rather than germinate in the slowly composting mass.

Bales of hay or straw don't have to be fluffed up to their original grassy bulk. Just break the bales into thin "books" about 1 to 2 inches thick, and lay down about three-thicknesses of these. Broken into several layers and moistened, the dense books will compost perfectly well.

To create an easily compostable sheet mulch, pay a little attention to the carbon:nitrogen ratio in the bulk mulch layer. If you're using high-carbon materials such as straw or, especially, wood shavings, sprinkle on nitrogen in the form of manure or blood meal, or "dilute" the carbonaceous mulch with perhaps one part clover hay, seaweed, grass clippings, or other high-nitrogen mulch for every four of high-carbon matter (see table 4-1 for a list of mulch materials and their C:N ratios). A mulch that is extremely low in nitrogen, such as wood shavings, will be very slow to rot down, and may cause anemic plant growth. You don't need a perfect C:N balance, just make sure there's *some* nitrogen in the mix to feed the compost critters.

As you build this layer, spray on some water every few inches. This layer should be damp but not wet; you're looking for that wrung-out sponge state. This can take a surprisingly large volume of water; it may take a couple of minutes of soaking every few inches to achieve the damp-but-not-wet state.

Atop the bulk mulch, add an inch or two of compost. If this is in short supply, add compost plus whatever soil is on hand to reach the final thickness. Or, if the pile will have a few months to compost before planting, you can substitute manure or several inches of easily compostable material for this layer. But if you plan to plant the sheet mulch within a few weeks, a layer of compost will be necessary to act as a seedbed.

The final layer is 2 inches of weed- and seed-free organic matter, such as straw, fine bark, wood shavings, or any of the others listed above. Besides smothering weeds, this layer gives the project, in landscaper jargon, "that finished look," which will endear you to your more fastidious neighbors. For planting seeds and starts, push this layer aside to reach the compost/soil layer right below, just as you would with any mulch.

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### STARTING PLANTS IN SHEET MULCH

A fresh sheet mulch won't be as productive as one that's six months old, hence it's best to prepare it in the fall. These beds seem to reach their prime the second season after construction, a productivity that doesn't fall off for several years and can be renewed by more mulch. But even a freshly built sheet-mulch bed is probably going to give plants a boost, as soil life blossoms within days, and there's plenty of fertility to be released in a foot of properly blended mulch. Starting plants in a new sheet mulch is a bit tricky, though. You can't simply sprinkle tiny seeds into the coarse, undigested mulch; they'll get lost.

If your sheet mulch hasn't broken down to soil by the time you want to plant, start seeds by making tiny pockets or trenches about 3 inches deep, filling them with soil or compost, and seeding these (this is why I keep that emergency compost pile). Seedlings and vegetable starts should also go into small soil pockets about three times the size of the plant's root mass. If the plant is deep-rooted, pull the mulch aside, slit the paper or cardboard in an X-pattern, and replace the mulch. Then plant above the slit, and roots will find the opening with no trouble. For shrubs or trees, either install them before sheet mulching and carefully work around them, or, after mulching, remove the mulch, slit the paper layer; peel the paper back, and dig a hole. Then place the plant in the hole with the root crown about an inch above the old soil level, and carefully replace the paper to minimize the chance of weed emergence. Either push soil up to cover the root crown and tamp it in place, or cover the crown with two or three inches of mulch, which in time will rot down to crown level. Don't bury the whole trunk in mulch or rodents will tunnel in and feast on the bark.

