

Gardening with Composts, Mulches, and Row Covers

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Composting

To make your own organic mulch, build a compost bin, preferably two. Two bins will allow you to build one batch of compost in the first, while you use completed compost from the second (Figure 1). You can make the bins yourself by attaching ordinary wire fence or boards to solid posts or blocks (Figure 2, page 2). Each bin should be 4 to 6 feet high, 3 to 5 feet wide, and any convenient length. One side should be removable for convenience in building up the compost material and for removing it. In late fall, a temporary piece of wire fence may be used to increase the height about 2 feet. After the material settles, you can remove the extension fence.

Compost is not only an excellent mulch but also a good fertilizer and soil conditioner when you work it into the soil. When properly made, it will be free of viable weed seeds.

Leaves, grass clippings, stems, and stalks from harvested vegetables, corn husks, pea hulls, and fine twigs are good materials for composting. Always compost leaves before using them as a mulch. Raw leaves are flat and may keep water from entering the soil. Avoid using diseased plants.

Do not use more than one-third walnut leaves in a mulch or compost. They are slow to decompose and contain a growth-inhibiting substance.

The best way to make compost is to use two bins. Fill one with alternate layers of organic material 6 to 12 inches thick and garden soil about

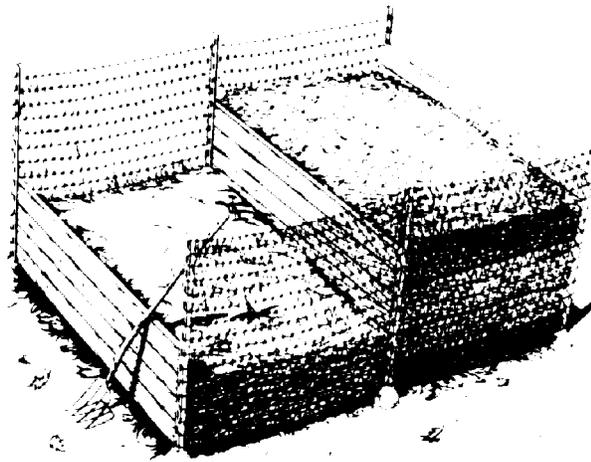


Figure 1.—With two compost bins, you can build one batch (left bin here) while you use completed compost from the other (right bin).

1 inch thick. As you add each layer of organic material, add about a cup of high-nitrogen fertilizer, such as ammonium sulfate, per cubic foot of compost material. This is about 5 pounds of fertilizer for a cubic yard, 3 feet by 3 feet by 3 feet.

Lime is needed on some western Oregon soils, and you can add it to mulch or compost at about $\frac{2}{3}$ cup per cubic foot. Since some ornamental plants are harmed by lime, however, you may choose to add it as you use the compost rather than adding it to the compost itself.

Animal manure may be used as part of the organic matter in compost. If you use manure, you don't need to add fertilizer. If the manure contains large amounts of woody bedding materials such as shavings or sawdust, you may

add about half the usual amount of fertilizer.

Be sure to moisten the organic material thoroughly. Repeat this layering process until the bin is full or you run out of organic material. Pack the material tightly around the edges, but only lightly in the center so that this area settles more than the edges and the water does not run off.

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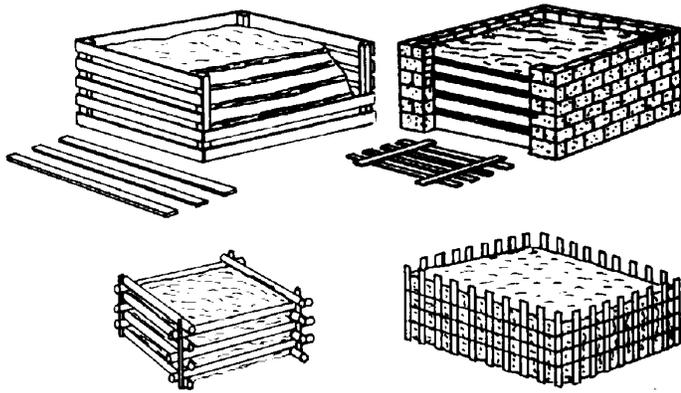


Figure 2.—You can make compost bins from readily available materials.

Observe the pile often during the summer. You'll need to add water because heat will cause loss of moisture needed for proper composting. You also may want to turn the pile if it becomes compacted.

Composting is temperature-dependent and will proceed faster in the summer. Shredding or otherwise making small particles also speeds up the process. During the winter, a plastic cover will prevent rainfall from leaching away nutrients. Fall leaves may not compost much during the winter, but you can turn them about May 1. Fork the material from one bin to another, placing the drier outside portion in the center. Turn again in about 3 to 5 weeks for the final composting. The material should be ready by midsummer for mulching and sidedressing.

Mulches

Using a mulch in your flower or vegetable garden is a sound practice. A good mulch can reduce soil packing and washing, suppress weeds, keep the soil moist, regulate soil temperature, and add organic matter to the soil.

Mulches prevent loss of moisture from the soil by evaporation. Moisture moves by capillary action to the surface and evaporates if the soil is not covered by a mulch. Sun and wind hasten this loss of moisture.

You can reduce evaporation and control weeds by stirring the soil an inch or so deep, but plant roots cannot develop in this soil layer. A layer of mulch on the surface gives the same benefits and allows normal plant root development.

Energy from falling raindrops is dissipated on a mulched soil. The result is less soil erosion and less soil compaction (Figure 4).

Organic mulches

Sawdust, straw, and compost make excellent mulches and are easy to apply. Simply spread a 2- to 4-inch layer of one of these organic materials on the soil surface around your plants, making certain you do not cover the plants. Keeping the layer deep enough to do the job is important, too. This means you will need to add more mulching material over the old layers to get all the benefits of mulching.

Mulching with grass clippings is a good way to dispose of the clippings, but don't use more at one time than will dry readily. If you apply them too deep, they will pack and/or get slimy and prevent water from entering the soil.



Figure 4.—When raindrops splash on bare soil, they detach soil particles (which surface water carries away), and they compact and seal the soil, forming an undesirable crust.

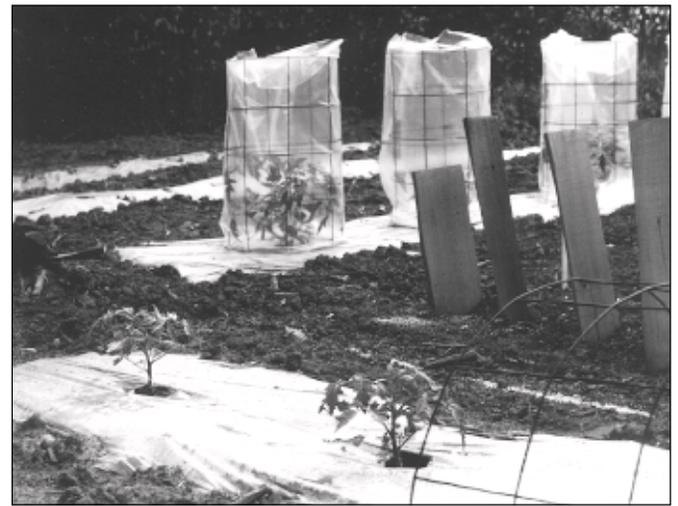


Figure 3.—Plastic ground mulch, tomato cages and plastic cage covers, roof shingles used to shade newly transplanted peppers, and wire support for a plastic tunnel (the plastic has been removed).

Sawdust makes a better mulch if it is well rotted, or if you add one cup of ammonium sulfate or calcium nitrate to each cubic foot of fresh sawdust before applying the mulch. (If you mulch around camellias or other plants that like an acid soil, use ammonium sulfate.) Weed-free straw is excellent, but loose straw can be a fire hazard, and some people consider it unsightly.

Mulches suppress weeds, thus saving a lot of work. An occasional weed may poke through the mulch, but you can easily pull it out.

Mulches can be used to regulate soil temperature. Plastic mulches will warm the soil; organic mulches will insulate against too much heat. Many plants, including those in vegetable and flower gardens, need a *cool* soil surface. Others, such as tomatoes and vine crops, may benefit from warmer soils.

Organic mulches condition the soil and furnish food for earthworms, which are valuable in aerating the soil. The organic matter helps to keep the soil crumbly and easy to work. At the end of the growing season, work the mulch into the soil to supply organic matter for the following year.

If you use a mulch heavily around perennials such as rhubarb or globe artichokes in the winter as protection from freezing, remove it in the spring to expose plants to light and let the soil warm.

Many organic materials, such as straw and autumn leaves, are low in nitrogen. Usually, you will find it beneficial to add nitrogen fertilizer to the material before applying it as a mulch. One cup of fertilizer high in nitrogen for each cubic foot of organic material, 5 pounds per cubic yard of mulch or compost, is about right. To avoid burning the plants, do not let the fertilizer touch them.

Plastic mulches

A 3- to 5-foot-wide strip of plastic covering the soil will hasten the ripening of warm-season crops such as tomatoes, melons, and peppers by as many as 10 to 14 days. Lay the plastic after you have fertilized and worked the soil to a proper seedbed. Hold the edges in place with soil. Insert the seeds of transplants through an X cut in the plastic.

Clear plastic warms the soil more than black plastic, but it can create a “greenhouse” for weeds. If temperatures of 90°F or above are frequent when weeds are small, they will be “cooked.” In Oregon’s relatively cool summers, this condition doesn’t always occur. Black plastic smothers the weeds, conserves moisture, and warms the soil.

Irrigation water that goes through the plant openings and around the edges usually is adequate, and no special provision is needed to get moisture into the soil for narrow mulches. For plastic mulches over 3 feet wide, perforate the surface with a sharp instrument such as an ice pick, or use a “nail board”—a board with many nails driven through it, which you can press against the mulch to perforate it. Or, if puddles form on the plastic, make a small hole in the plastic at the lowest portion of the pool to allow drainage

into the soil. Less water is needed with plastic mulch, since evaporation loss is less.

A large sheet of black plastic may be used to cover the garden during the winter if a portion is to be worked and planted very early. It will keep down the winter weeds, and the soil will remain dry. Weights or a bark mulch may be needed to keep the plastic in place.

Row covers

The use of row covers can enhance early development of many vegetables. These covers increase heat units accumulated by two to three times. Row covers make possible the production of high-quality melons in western Oregon and enhance earliness for many crops by improving vine growth and flowering.

Supported row covers

You can lay row cover materials over the row and support them by wire hoops to provide a low tunnel for the plants to grow under for 4 to 8 weeks (Figure 5). Supports are required for nonventilating covers such as solid, slitted, or semiperforated polyethylene films. The supports keep the covers off the leaves of the plant and allow air movement. Place covers over the crop immediately after seeding or transplanting, and fasten down the edges with soil.

One method that allows easy opening and closing of the covers is to place the plastic over a set of wire hoops (burying only one edge), then place a second set of wire hoops over the plastic. This allows you to slide the unburied edge up and down between the two sets of wire hoops to provide ventilation.

Floating (unsupported)

row covers

Recent developments with different types of fabrics have generated a number of materials that you can lay directly over crops without the danger of damage (Figures 6 and 7, page 4). Since the crop provides support for the cover, and continues to do so for 4 to 8 weeks, the cover floats on top of the crop as it grows—hence the name. Materials suitable for use as floating row covers include a highly perforated polyethylene (Vispore), spunbonded polyester (Reemay), and spunbonded polypropylene (Agril P17 and Kimberly Farms row covers). Other materials are being developed and placed on the market through garden supply stores.

You fasten these covers on either side of the row by burying the edges, allowing enough slack in the cover for the plant to grow (10 to 15 percent slack in both directions is required).



Figure 5.—Left and right, supported row covers of solid, reinforced polyethylene. In really hot weather, gardeners need to cut holes (right) for ventilation. Center, these cylinders of double-walled polyethylene have numerous vertical tubes that you fill with water. Suitable for peppers and tomatoes, they’re troublesome to fill but quite effective in cold weather.

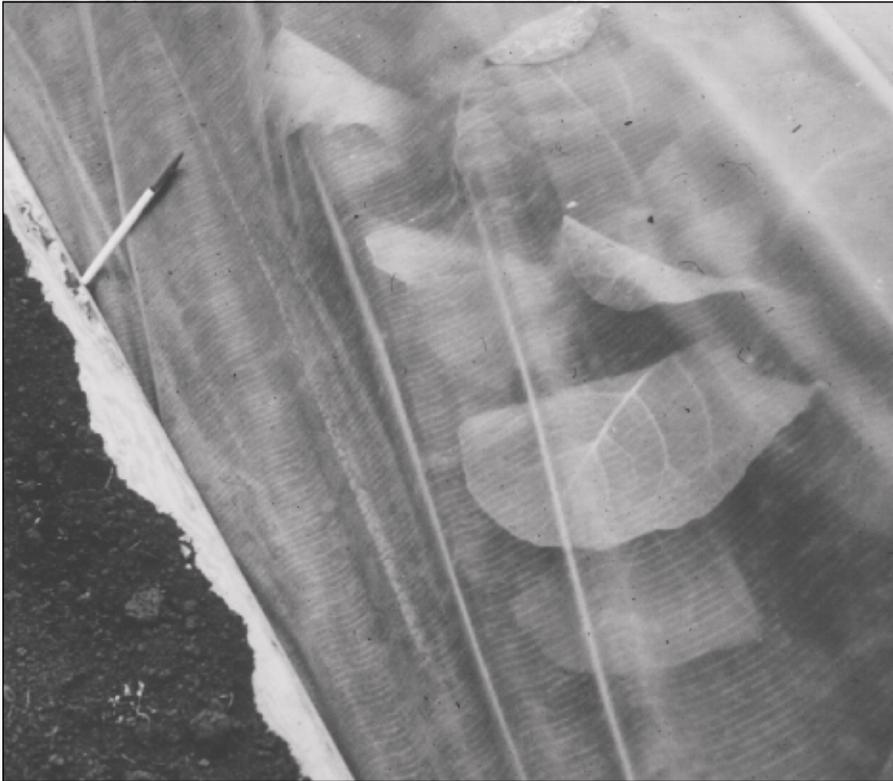


Figure 6.—These cabbage plants are lifting up a floating row cover.



Figure 7.—Sweet corn growing under a floating row cover. It's June 10, just before cover removal.

Where the crop requires insect pollination, remove the covers after flowering begins. You also must remove covers when temperatures become too high for good fruit set. Floating covers are an excellent way to reduce the need for insecticides.

For more information

Backyard Composting, WAEB 1784 (revised 2001).

Improving Garden Soils with Organic Matter, EC 1561 (May 2003).

Short-Season Vegetable Gardening, PNW 497 (1996).

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