



## **Mulches for the Vegetable Garden**

### **The Thick and Thin of Mulching**

Organic mulches cool the soil, which is great if you live where summers are hot. In Texas, 4 inches of organic mulch is recommended for top performance from tomatoes, peppers and other summer vegetables. But in climates with short, cool summers, a thick mulch can become a slug haven that keeps the soil cold and clammy.

### **Mulch First, Dig Later**

Many research studies have compared how crops respond to organic materials used as a surface mulch versus mixing the same materials into the soil. Vegetable crops vary in how they respond to the direct incorporation of leaves, wood chips, yard waste compost and other organic materials into the soil, but yields are almost always better if organic materials have been applied as mulches than when the fresh materials have been mixed into the soil. So, when in doubt about how to use any organic material to enhance plant growth while enriching soil, first try applying it as mulch.

### **Benefits**

The benefits of mulch depend on the material used and depth to which it is applied. In general, mulching minimizes evaporation of water from the soil surface, reducing irrigation need by around 50%. It helps stabilize soil moisture levels, thereby improving vegetable quality and encouraging the beneficial activity of soil organisms.

Mulching helps reduce soil compaction forces from rain and foot traffic. Some may later be plowed into the garden as a soil amendment, adding organic matter to the soil. Mulch may cool or warm soil temperatures. It may control weeds.

Here are the two types of mulches you can use in your garden, and examples of each type:

## **Organic Mulches for the Vegetable Garden**

Organic mulches are made from plant materials such as bark , leaves or needles, grass clippings, or compost.

### ***Sawdust***

A 2-inch layer of sawdust provides good weed control. Fresh sawdust contains a great deal of carbon and very little nitrogen, and its breakdown requires that microorganisms take nitrogen from the soil. A very thin layer of sawdust, about a 1/4 inch, is useful in starting seeds because it helps keep moisture in. There is often a problem with crusting of fresh sawdust, which can make it difficult for rainfall to soak through. Sawdust is best used for vegetable garden paths and around permanent plantings. Readily available from sawmills, it tends to be inexpensive.

### ***Hay or Straw***

A 6- to 8-inch layer of hay or straw provides good annual weed control. These materials decompose quickly and must be replenished to keep down weeds. They stay in place and will improve the soil as they decay. Avoid hay that is full of weed seed and brambles. Fresh legume hay, such as alfalfa, supplies nitrogen as it quickly breaks down. Hay and straw are readily available in rural areas, but city dwellers may not be able to obtain hay easily. Straw, on the other hand, may be purchased at most garden centers, often commanding a high price. Both are recommended for vegetable and fruit plantings.

Hay or Straw Is a Great Organic Mulch for the Vegetable Garden

### ***Pine Needles***

Baled pine needles are also found in garden centers for use as a mulch. Pine needles and pine bark should be watched closely in vegetable garden as they can raise the acidic levels of the soil.

### ***Grass Clippings***

A 2-inch layer of grass clippings provides good weed control. Build up the layer gradually, using dry grass. A thick layer of green grass will give off excessive heat and foul odors rather than decompose as other organic material. However, in limited quantity, clippings will decompose rapidly and provide an extra dose of nitrogen to growing plants, as well as making fine humus.

Avoid crabgrass and grass full of seed heads. Also, do not use clippings from lawns which have been treated that season with herbicide or a fertilizer/herbicide combination. Grass clippings may be used directly as mulch around vegetables or fruit plants, or they may be composted. They are an excellent source of nitrogen to heat up a compost pile, especially for those gardeners without access to manures.

### ***Leaves***

A layer of leaves, 2 to 3 inches thick after compaction, provides good annual weed control. Leaves will decompose fairly quickly, are usually easy to obtain, attractive as a mulch, and will improve the soil once decomposed. To reduce blowing of dry leaves, allow to decompose partially. Leaves are a highly recommended vegetable gardening mulch.

Dried or Composted Leaves Make an Excellent Organic Mulch In the Vegetable Garden

Note: Leaves of the black walnut tree (*Juglans nigra*) are an exception due to the presence of

juglone, a chemical that inhibits growth of many plants. While walnut roots and hulls cause most of the problems, the leaves also contain smaller quantities. Avoid using leaves collected from under black walnut trees as garden mulch. However, if leaves are obtained from a municipal collection source, the quantity of black walnut leaves likely will be diluted sufficiently that no injury should be observed. Several other nut trees also produce small quantities of juglone, and problems with sensitive plants are seldom seen even when growing under those tree canopies.

### ***Compost***

A 2- to 3-inch layer of compost is a fair weed control. Most compost, however, provides a good site for weed seeds to grow. It is probably better used by incorporating it into the soil since it is an excellent soil amendment. A layer of compost may be used on overwintering beds of perennials, such as asparagus or berries, to provide nutrients and help protect crowns.

### ***Bark and Wood Chips***

A 2- to 3-inch layer of bark provides good weed control. Wood chips are slower to decay than shredded bark, and can be used as a pathway material in raised beds.

## **Inorganic Mulches for the Vegetable Garden**

Inorganic mulches are made from man-made materials such as black plastic or newspaper.

### ***Black Plastic***

One layer of black plastic provides excellent weed control. It is relatively slow to decompose, but will be somewhat broken down by sunlight and must be replaced every two years at least. Black plastic mulch will increase the soil temperature by about 8°F in the spring. It may cause soil temperatures to rise too much in mid-summer, damaging the roots of plants unless a good foliage cover or organic mulch prevents direct absorption of sunlight.

#### **Black Plastic Can Be Used as a Mulch in the Vegetable Garden**

Check periodically to see that soil remains moist beneath the plastic; cut holes in it if water doesn't seem to be getting through. Black plastic is easy to obtain, but is fairly expensive. A new type of black plastic has recently come onto the market which has a white, reflective side to prevent the overheating problems experienced with solid black plastic. Another plastic is porous to allow penetration of water and exchange of gases between the soil and air.

### ***Newspaper***

Using 2 to 4 layers of newspaper provides good weed control. It decomposes within a season and is readily available and cheap. Cover with an organic mulch, such as sawdust or hay, to hold paper in place. Excellent for use in pathways and around newly set strawberry plants.

Lead in printers' ink has been a concern of some vegetable gardeners desiring to use newspaper, however, printers no longer use lead compounds in ink for black and white newsprint, though colored inks may contain lead.

## Simple Maintenance: Doing Less, Expecting More

A backyard vegetable garden should be an asset, not a burden. Watering, weeding, fertilizing and similar chores can be kept to a minimum if the beds are properly prepared and well-mulched. Low-maintenance gardens are the only way to keep the fun in gardening, and low-maintenance techniques can also lead to increased yields from your plants.

**Basic Seasonal Needs** - an understanding of the three essential elements during a crop's life-cycle will ensure that your vegetables have the right nutrients at each stage of development.

- **Nitrogen (N)** - promotes leafy growth, essential in spring, but nitrogen should not be applied as the plant nears maturity or it will encourage growth instead of fruiting.
- **Phosphate (P)** - promotes root growth and new shoots. Rock phosphate and bonemeal can be applied throughout the growing season.
- **Potassium (K)** - aids fruiting and flowering, essential as the plant nears maturity.

**Watering** - Early in the morning is the best time to water your garden because there is less water loss to evaporation. Watering in the evening is OK, but leaving the plants and soil wet overnight can encourage slug activity, and can cause young seedlings to 'damp off'.

**Weeding** - It's best to pull any weeds before they are mature enough to put out seeds.

**Mulching** - Once seedlings are tall enough, it's time to add a 4" - 6" blanket of mulch to cover the soil surrounding the plant. Mulch is not dug in - it stays on top of the soil. Using mulch conserves water by reducing surface evaporation; mulch also greatly reduces the need for weeding, the bane of the gardener. Do not use landscape cloth or plastic sheeting beneath mulch. The mulch will gradually incorporate into the soil, adding nutrients and preserving loose soil texture. The mulch will need to be 'topped up' from time to time.

Using mulch reduces maintenance chores for the gardener while saving water and encouraging vigorous plant growth. A savvy gardener always has an eye out for free sources of mulch material. The following chart shows the common materials used for mulch and their properties when in use.



type of mulch	properties
straw	Straw is ideal for mulching - it's easy to apply, stays in place and reflects light which aids fruiting in some vegetables. However, take care to ensure you are using straw, not hay. Hay will introduce seeds to your garden beds which will become unwanted weeds.
alfalfa	Alfalfa hay is a good mulching material because it is usually cut before it can put out seeds. Used as mulch, alfalfa is high in nitrogen and long-lasting.
leaves	Leaves are excellent when used as mulch and they also contribute nutrients to the soil as they break down. However, leaves are not readily available in the spring; they are valued as over-winter mulch. To keep leaf mulch from blowing away, sprinkle dirt on top.
grass clippings	Older (brown) grass clippings work well as mulch. Fresh (green) grass clippings also can be used, and they add nitrogen to the soil. Fresh clippings should not be used in late summer when maturing plants should not receive nitrogen.
seaweed	Freshly gathered seaweed makes an ideal mulch which also contributes trace minerals to the soil. Seaweed also deters slugs. Seaweed should be applied thickly because it shrinks a lot as it dries. The amount of salt seaweed brings to your soil is minimal but you can spray it with fresh water before applying if concerned.
newspaper	Strips of newspaper can be used as mulch, but it needs to be wetted and either weighted down or covered with dirt or another mulch to keep from blowing away. Do not use glossy paper or newspaper printed with color inks.
black plastic sheeting	<p>Widely used as a mulch and ground cover to suppress weeds. May need to be weighted down at the edges with rocks. Use a heavy weight (6 mil) plastic. This mulch helps retain moisture in the soil, but cannot be watered through. Some gardeners cut holes for the plant with some room for watering.</p> <p>Black plastic sheeting can have the negative effect of baking the soil, raising soil temperature as deep as 12". To minimize this impact, a light-colored mulch such as straw can be laid over the plastic sheeting.</p>
sawdust	Fine sawdust is not good to use for mulch because water beads up and runs off in rivulets. Coarse sawdust works well as mulch, but avoid wood shavings from chainsaws because this sawdust has chain oil residue which you don't want in your organic garden.
bark mulch	Commonly used for shrubs and landscaping, this should not be used in vegetable gardens because it is acidic. However, bark mulch is excellent for covering the paths between beds; first lay down landscape cloth on the paths and cover with 2" of bark mulch.
compost/manure	Compost and manure should not be used as a mulch for vegetables because they have too much nitrogen; manure may contain weed seeds. Better to use these as soil amendments when making new beds, or to 'top dress' thinly in the early part of the season.