



# MASTER GARDENER

COLORADO STATE UNIVERSITY  
EXTENSION

CMG GardenNotes #715

## Mulches for the Vegetable Garden

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### 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 traffic. Some may later be plowed into the garden as a soil amendment, adding organic matter to the soil. Mulching may cool or warm soil temperatures. It may control weeds.

### Grass Clippings

Grass clippings make excellent mulch for the vegetable garden. Apply fresh clippings in thin layers (up to 1/4 inch thick) and allow each layer to dry before adding more. The clippings quickly dry down and additional layers can be added weekly. A few layers will stop weed seed germination. Do not place fresh clippings in thick piles, as they will mat, reducing water and air infiltration, stink, and may become hydrophobic. Do not use clippings from lawns that have been treated with herbicides or other pesticides in the past month. [Figure 1]

Figure 1. Grass clippings being applied to garden directly from lawn mower bag. Apply only in thin layers, allowing the grass layers to dry between applications.



Around lettuce and other leafy vegetable, mulch by carefully hand placing the grass at the base of the plants. Grass sticks to wet lettuce, creating a problem in food preparation.

A couple of sheets of newspaper may be used under the clippings to help control weeds. The newspapers blow away with a light wind. It must be covered immediately with grass to hold it in place. It shuts out the light preventing seed germination. Do not apply newspapers more than a couple of sheets thick or a soil carbon to nitrogen imbalance may occur. Do not use glossy print materials; their inks may not be soy-based like newspapers. The grass and newspaper mulch may be cultivated into the soil in the fall adding small amounts of organic matter. [Figure 2]

Figure 2. Corn bed being mulched with newspapers (only a couple of sheets thick) covered with grass clippings.



## Wood or Bark Chips

**Do not use wood or bark chips in the growing beds** since they will interfere with future seedbed preparation. It takes several years for chips to decompose in the soil.

In a raised-bed garden, wood or bark chips make excellent mulch between the boxes. Apply three to four inches deep to control weeds. At this depth, chips also prevent soil compaction from foot traffic, allowing crop roots to spread out under the walkways. [Figure 3]

When placed on the soil surface as mulch, wood/bark chips do not tie-up soil nitrogen. Does not use fine sawdust for mulch because it could create carbon to nitrogen imbalance.

Figure 3. Wood or bark chips make excellent mulch between raised-bed boxes.

Do NOT put wood or bark chips on the growing bed. The chips take years to breakdown and will interfere with seedbed preparation.



## Black Plastic

Black or colored plastic mulch is extensively used in commercial tomato, pepper, and melon production in Colorado. It merits consideration for the tomato family (tomatoes, peppers, eggplant) and the vine crops (cucumbers, summer and winter squash, pumpkins, watermelons, cantaloupes and other melons). Because it warms the soil, it is undesirable for other crops.

Put the plastic on the growing bed early in the season to start the soil warming. **Crops must be planted early so plant growth shades the plastic before summer heat arrives.** Otherwise, the plastic can be too hot for crops and must be removed.

The plastic warms the soil allowing for earlier crop growth. Along the Colorado Front Range, crops average 2-3 weeks earlier production and produce higher yields. In cooler locations, crops could be three to over four weeks earlier in production.

The black plastic mulch also controls weeds and reduces the need for irrigation. Because there is no surface evaporation of water, it is easy to over-irrigate crops.

### Applying plastic mulch

1. Prepare the soil and irrigation system. Drip irrigation with a soaker-type hose works well. Slightly mound the soil so the plastic makes direct contact with the ground.
2. Cover the growing bed with the plastic. Bury all edges two to four inches. On a raised-bed box made with lumber, staple the plastic on the sides of the box.
3. Cut holes to plant or transplant into. Do not cut “X’s”— the hot plastic touching tender plants can burn.

Figure 4. Tomatoes planted down a 30-inch wide raised-bed box. Plastic mulch is stapled to side of box. Plants are spaced at 24 inches in the center of 24-inch wide cages.



Figure 5. Trellised tomatoes in raised-bed box with black plastic mulch.

With plastic mulch, crops must be planted early so plant growth shades the plastic before summer heat arrives.



The plastic fluttering in the wind pumps air into the soil. However, covering the plastic with organic mulch like grass clippings or chips could reduce soil oxygen levels.

In the fall, do NOT plow in the plastic, rather remove and put it in the trash. Polyethylene plastic will never decompose in the soil. Because it breaks down with sunlight, it generally can be used only for a single season. Chemists are working on biodegradable plastics for horticultural uses. It will be a few years before they are available.

Some gardening magazines talk of colored plastics. For example, red plastic is reported to increase tomato yields in cloudy climates. It also makes the fruits softer in texture. With Colorado's high light intensity, color is insignificant.

**Warming the soil for other crops** – Plastic may also be used to warm the soil for other crops, being applied early and **removed prior to planting**. For maximum soil warming, clear plastic is most effective. However, it will also encourage weeds to grow under the warm, greenhouse-like covering.

## Straw

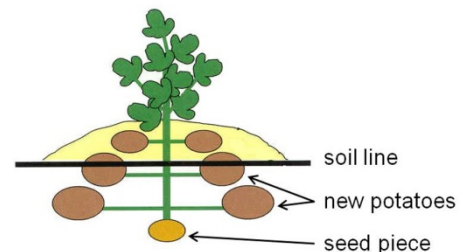
Weed free (seed free) straw makes excellent mulch for potatoes. When purchasing straw, look for certified weed (seed) free products. Otherwise, the potato patch may be thick with oats!

The straw protects tubers growing near the surface from sunlight, so the potato plants do not have to be mounded. (When a potato tuber is exposed to sunlight, it turns green, becoming mildly poisonous.) [Figure 6]

Certified weed (seed) free straw is also a good organic source for clayey soils. After using it as a summer mulch, thoroughly cultivate it into the soil as a soil amendment in the fall.

Figure 6. The new crop of potatoes grows above the seed piece.

To shield growing tubers from sunlight (which turns them green), soil is "hilled" (mounded) around the base of the plant. Straw mulch may be used as an alternative to hilling.



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Revised October 2014