

MULCH Science Page

MULCH MATERIALS

Mulch is a covering that is placed on top of bare soil. Some materials that are used for mulching include:

hay, straw, or wood chips



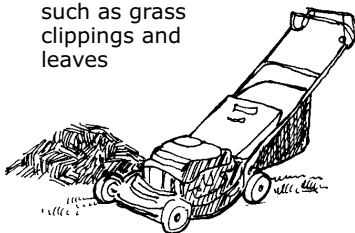
compost



black plastic



yard wastes, such as grass clippings and leaves



WHAT ARE THE BENEFITS OF MULCHING?

* Mulch protects the soil.

When it rains on bare soil, water washes away taking a lot of soil with it. The soil also gets compacted and crusty when hit by hard rains. Then neither air nor water can enter the soil and get down to the roots of plants.



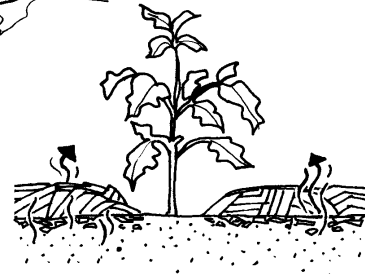
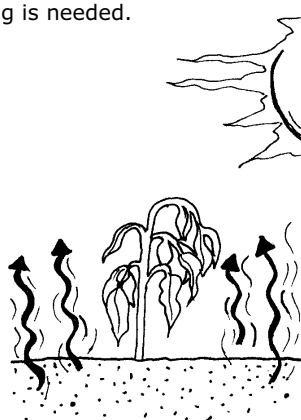
Rainwater trickles through a mulch, and slowly seeps into the soil rather than washing away. The soil stays loose, and the soil surface does not get crusty. Mulch keeps muddy rainwater from splashing crops, so they are cleaner and less likely to get diseases.



* Mulch prevents loss of water from the soil surface.

Under a hot sun, bare soil gets very warm. A lot of water evaporates from the soil surface. That means a lot more watering is needed.

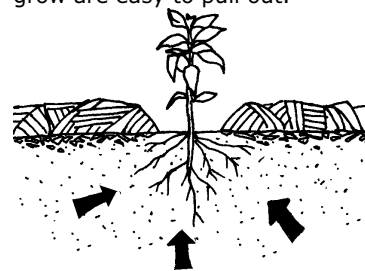
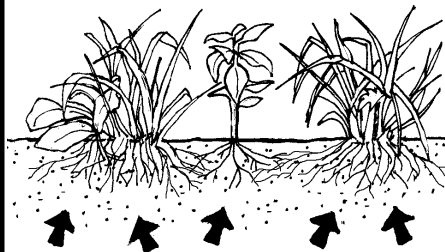
Mulch shades the soil, keeping it cooler. Less water evaporates from the soil surface.



* Mulch prevents weeds from growing.

Weeds can sprout and grow on bare soil. That means a lot of weeding is needed.

Mulch shades out weeds, which compete with crops for nutrients, water, and light. The few weeds that grow are easy to pull out.



* Mulch improves the soil.

Over time, organic mulch materials decay, adding nutrients and humus to the soil.





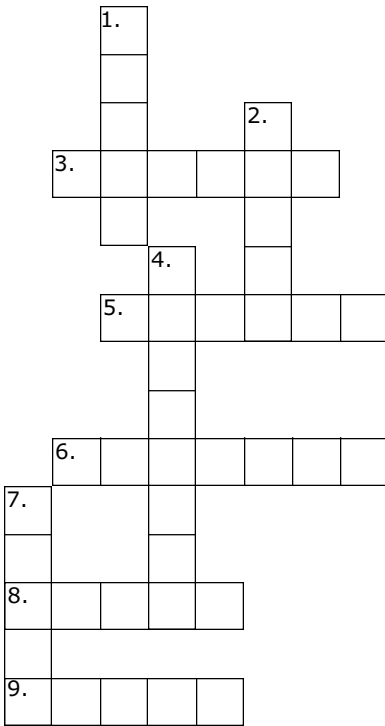
CROSSWORD PUZZLE

Across:

- Yard wastes, such as _____, can be used as a mulch.
- When it rains on bare soil, the soil gets _____.
- Mulch keeps crops _____.
- Mulched soil stays _____.
- Mulch adds nutrients and _____ to soil.

Down:

- Mulch prevents loss of _____ from the soil surface.
- Mulch prevents _____ from growing.
- Mulch _____ soil.
- A covering that is placed on top of soil.



TRY THIS

COMPARE MULCHED AND UNMULCHED SOIL

What you need:

- * two flower pots
- * garden soil that is not high in organic matter
- * mulch, such as grass clippings, straw, or compost
- * water and watering can

What to do:

- Fill the two flower pots with soil.
- Put mulch on one and not on the other.
- Use the watering can to water both containers thoroughly. Hold the watering can

at least a meter above the pots as you water.

- Place both flower pots out in the sun.
- Let the pots sit for a day or so, and then remove the mulch from the one pot.
- Look at the soil in the two pots. Has a crust formed on the soil surface in either of the pots? Which soil is more moist? Discuss the differences that you observe.



SPOTLIGHT ON RESEARCH

In search of an effective mulch

Many vegetable growers in the northeastern U.S. use black plastic as a mulch. The use of black plastic increases their yields and speeds up the growth of their crops. How does black plastic mulch help crops grow? It suppresses weed growth, improves the soil, prevents water loss from the soil surface, and keeps crops clean. However, black plastic has one big disadvantage--it is very difficult to take up and dispose of at the end of each growing season. Scientists are looking for a good substitute that has all the advantages of black plastic, but that would not have to be removed after each season. In other words, they are looking for a mulching material that does not decay too quickly, but that could be tilled into the soil, where it would eventually decay.

For several years they have been testing various paper mulches. The first ones they tried decayed too quickly, but each year the quality has improved. The latest version is a paper coated with a substance made from cornstarch. The coating on the top side has carbon added to make it black, and the underside is clear. When this paper mulch was used to grow melons on raised beds, the yields were similar to those with black plastic mulch. The paper mulch shows promise for melons and other crops, but it is not available commercially because the cost of the coating is very high. Scientists will continue to develop and evaluate new mulches.

Source: (2001). Fresh market vegetable variety and cultural practice trial results from upstate New York: can paper mulches replace black plastic in vegetable production?
<www.hort.cornell.edu/extension/commercial/vegetables/online/2001veg/pdfs/text/Papermulch01.pdf>



RIDDLE

What did the soil say to the black plastic?

Answer: I love you so much!