

## 12. Mulching

**M**ulching is *Fundamental #6*. It will conserve topsoil and moisture, as well as provide fertilizer. When straw or crop residue covers the topsoil, it holds it in place while stopping raindrops from compacting soil. Areas with heavy rain require more plowing.

It also slows down rain run off so that moisture can penetrate down to the roots. Erosion is costing farmers valuable organic matter and trace elements. When you mulch, the rain percolates gently into the soil and goes much deeper than when exposed to wind and rain. In dry climates wind erosion can be worse than rain erosion.

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Mulching also prevents soil from splashing onto leaves thereby minimizing many disease problems from pathogenic bacteria in the soil. Tomatoes are especially prone to soil borne viruses from splashed soil.

My favorite reason to mulch is weed suppression. If properly applied, 2-3 inches (10-15cm.) of mulch will keep seeds from poking through till your plants are well established. The time you spend mulching is paid back 3 fold in carefree / weed free productivity.



**Mulching is yet another form of field composting, where the earthworms and microbes digest the cellulose and feed the plants that follow. It is a source of many nutrients including nitrogen, however there are a few precautions.**

You need to hand broadcast a layer of compost or fertilizer with nitrogen before you mulch. Bokashi is good for this. Don't use chemicals. The bacteria that work on mulch will require nitrogen to balance out the high carbon content of the straw. Always lay down

compost before using mulches, otherwise it will “lock up” (monopolize) the nitrogen available to the plant and the plant will turn yellowish and lose productivity. Many farmers have experimented with mulch, only to lose their crop due to this small detail-**always lay down nitrogen before you mulch so your crop does not get stunted.** That’s why the 30:1 carbon to nitrogen target is important. Review the section on composting if you can’t recall the principle of balanced carbon to nitrogen ratios.



**Raised beds with mulch are ready for planting.**

Another rule of good mulching, learned through experience, is to keep it away from the stems of the plant. If the mulch contacts the stem, some plants can’t prosper. Sometimes slugs from our rice straw will traffic to the new seedling, but only if it is touching. So keep a small area around your plants free of the straw or mulch material.

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**We use rice hull on our walkways; but woodchips are good too. We even use rice hull in the green house.**

Walkway mulching suppresses the weeds and will break down over the coming years. It is useful for adding to the raised beds later. The high carbon materials are aged and will decompose readily once they enter the soil. On vegetable beds we use mainly rice straw. Around our papaya trees and seedlings we use legume straws or leaves. We've used cogon grass successfully. It lasts a long time but could be a fire hazard in the beginning when the oil level in the leaves is high. You have to allow it to slope into the stem so moisture will penetrate down into the soil. Otherwise the water runs off. We've also used sugar cane leaves and weeds of all types. Use what you have; just experiment on small areas if you're not sure what will work. Make sure you are not spreading weed seeds if you're mulching with grasses.



**Carrot quality and sweetness are enhanced by the phosphates in straw mulch.**

Mulching is also part of the nutrient cycle. It releases trace elements from deep-rooted plants onto the surface of the soil. These nutrients are not usually available in the rhizosphere (root zone). Bacteria and fungi quickly digest surface debris. They are especially adept at consuming and converting organic matter into good smelling rich friable topsoil. All the organic matter will eventually feed your plant. The straw mulch in particular will enhance the sweetness of your carrots, peppers, tomatoes, etc. This has to do with natural chemical processes in the soil that facilitate the process as a result of microbial activities that we are still learning about. Acres USA is a resource you can tap on the Albright Model for balanced nutrient management. The complete balance of all required nutrients operate s within maximum and minimum levels and requires careful regulating.

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A walkway covered in rice hull prevents soil from eroding and minimizes mud.



Carbonized Rice Hull, or rice hull charcoal is an exotic potting soil amendment in half the world. It's not so good as mulch. Nevertheless, it is famous for its soil-conditioning properties. It's a harboring agent for EM. We grind it for our goat, hog and chicken feed mix. We make it open air, in a pile, with no specialized equipment. We start a wood fire and smother it with hulls. It's important to keep it from burning. Then we hose it down and it's ready to use.



Ready to eat off-season watermelon produces high sugar content when we use heavy mulch.





**We grow the perennial peanut or mani-mani between raised beds of lettuce, protecting the soil. It's a tropical legume from Brazil.**