



Integrated Pest Management

Ways to Control Weeds- Mulch

Mulch

WHAT IS MULCH AND HOW DOES IT PREVENT WEEDS?

A mulch is basically a “cover” that is placed on top of the soil. Mulches prevent weeds because they act as a barrier. Weed seeds deposited in mulched areas will fail to reach bare soil and seeds already present in mulched soil often fail to germinate due to lack of sunlight. If a weed does happen to germinate under a layer of mulch it is likely that it will not be able to push through a mulch layer of the proper depth. Unless it is a particularly tenacious weed species, weed seeds that get deposited on top of mulch find these areas inhospitable, although this depends on the mulch composition, particle size, and rainfall. While small existing weeds may be smothered by a mulch application, larger weeds may survive, and grow through. These weeds should be controlled before the mulch is applied. Mulches also benefit soil because nutrients and organic matter are added to the soil as the layer breaks down. Additional benefits of mulch are enhanced water and air penetration and moisture retention. The use of mulch also minimizes soil compaction and erosion. Uniform soil temperature is maintained by mulch because it insulates, keeping the soil warmer during cold weather and cooler during warm weather. Though it covers the soil, mulch will generally not pose a barrier to plant fertilization and fertilizers can be applied over the top of the layer.

HOW ARE MULCHES USED?

In temperate climates such as the Pacific Northwest, mulch is best applied to soil early in the spring, or early in the autumn before the fall rains have begun. Applying mulch before weed seeds germinate is the critical timing issue. The degree of weed control achieved by mulch will vary with the size of the material used and the number, types, and stage of growth of the weeds that are present. Coarse mulches may be less hospitable to some weed seed establishment. Mulches made up of smaller, finer particles will form a more complete barrier to the soil than coarser materials. However, organic mulch made up of smaller particles will break down faster than mulch made up of larger particles and will have to be replenished more often. And mulch that is too fine textured may provide an ideal seed bed for introduced weed seeds if it is kept moist.

In order to get the most effective weed control and other benefits from mulch, a minimum application depth of 2 inches is recommended. Anything less than this will usually not provide



adequate weed control. The maximum recommended depth is 4 inches for most mulch layer in landscaped areas, or in areas with tree roots are present. If applied too thickly, mulch can interfere with the natural exchange of air and water to the soil layer below. This will lead to problems with soil health and may harm roots of existing plants in the landscape. A very coarse textured mulch is better to use if the layer is to be thick.

WHAT KIND OF MULCHES ARE THERE?

Bark

Bark mulch is a by-product of wood processing. Bark can come from many different kinds of trees with the types available often depending on the region of purchase. Coniferous or softwood bark is considered more decay resistant than hard wood bark and is the common mulch available in the Pacific Northwest. Bark can be purchased in different particle sizes. Bark chips have moderate particle size (1/5 to 1/2 inch) and moderate to good stability, while bark nuggets have larger particle sizes (1/2 to 2-1/2 inches) and excellent stability over time. Bark nuggets break down slowly and are the longest lasting, followed by chips. Small particle bark dust and shredded bark breaks down even more quickly.

When bringing mulch into a planting area, make sure it is of good quality. Avoid mulches that are contaminated with weed seeds. To keep consistent recommended depths of mulch, organic mulches must be periodically replenished as they break down. While this natural breakdown is a good thing for soil health, it will reduce the effectiveness of mulch as a weed barrier. But beware of applying mulch too often, or too deep. An excessive buildup of mulch is a common problem in landscapes. Thick layers of conifer bark in particular may create a layer that is not good for the root growth of landscape plantings. It may also create a barrier to water reaching plant roots. Landscape mulch must be monitored for depth to keep this from occurring. Also, do not apply mulch right up to the stems or trunks of plants and trees, as this will encourage diseases and provide cover for rodents and insects which may harm them.

Wood chips and sawdust

Chipped wood from both softwood and hardwood trees is another commonly used mulch material. Similar to bark mulch, wood chips form a good barrier and can be less expensive. While sometimes considered less aesthetically appealing than some materials, wood chips can be an excellent long term soil additive. Sawdust is less often used as an ornamental mulch, but can be a good option in crop producing areas.



Compost

Compost is the decomposed remains of organic material. Whether made at home from plant material and kitchen scraps or purchased from commercial sources, compost can be quite variable depending on the source material. Usually of fine texture, compost is very good at holding moisture and is often considered the best amendment for improving soil. These characteristics also make it less effective as a weed barrier compared to some other mulches. Weed seeds may find the compost mulch layer a good place to germinate and establish, and compost tends to break down quickly. However, the benefits compost provides landscape plants may override these drawbacks. It is important to use compost that was properly managed

during the composting process, so that any weed seeds in the source material were destroyed. Compost that has not been made properly may introduce many new weed seeds that could add to the problem.

Grass clippings

Grass clippings are readily available to those that have lawns to mow. While many gardeners now use mulch mowers that leave the clippings on the lawn to decompose, collecting cut grass is still common. This material can be used as a mulch, but such a layer can be dense and may become somewhat impervious to water and air. Clippings also tend to break down quickly, and may not provide long term weed control.

Hay and straw

These mulches are often used in vegetable gardens. Hay is higher in nitrogen than many other mulches so nitrogen supplementation is usually not required. Use hay with caution because it can contain weed seeds. Straw is less likely to contain weed seeds and it lasts longer than hay, but the organisms that break down straw will use nitrogen in their immediate vicinity. Nitrogen supplementation may be required when straw mulch is used.

Leaves

Usually readily available in the fall, leaves can be used as a mulch, but a good layer may be difficult to keep in place. Leaves make a better mulch if composted into leafmold first. Certain types of tree leaves may also effect soil properties when used fresh. For example, black walnut leaves possess natural chemicals that can make it difficult to grow desirable plants where they fall and accumulate.

Nuts shells and other agricultural by-products

Agricultural by products such as hazelnut and other nut shells, cocoa bean husks and coir fiber have recently become more available. Offered in bulk or packaged forms, or sometimes pressed into mats, their availability often depends on local crop and orchard types. These materials can function well as soil or path covering mulches but individual characteristics vary.



Rock and gravel

Rock based mulches are fire resistant and will not break down like organic mulches. Because rock mulches do not decay there is less need to periodically replenish the mulch in order to keep up a consistent depth. Rock mulches do tend to sink into soil, and over time they may become mixed with soil and organic material. This makes them less effective at preventing weeds. Sometimes rock mulches are combined with a landscape fabric beneath the layer to keep them from sinking and mixing with soil. Though rock based mulches offer more permanence, this can pose problems when changing landscape borders. Unlike traditional mulches, rock based mulches absorb heat during the day and release it at night, which can affect water loss. If the rock-based mulch is light in color it will also reflect sunlight. Therefore areas where rock mulch has been applied will tend to be warmer and drier, so the types of plants where rock mulch is going to be used must be chosen with this in mind. Another consideration when using rock based mulch is the use of a border in order to keep rocks from migrating out into other areas. Rock mulch in turf can pose a safety hazard when mowing takes place.

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