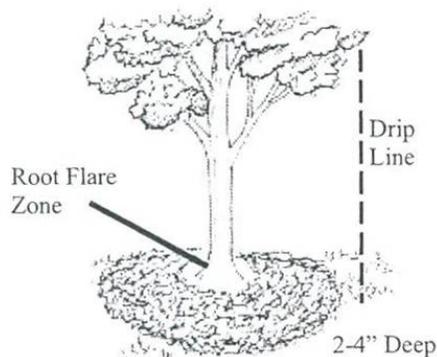


## Benefits of Proper Mulching

- Helps to conserve soil moisture; evaporation and the need for watering is reduced;
- Insulates the soil surface, keeping it warmer in winter and cooler in summer;
- Helps control weeds and grass;
- Protects the trunk and surface roots from mechanical injury from lawn mowers and string trimmers;
- Improves soil structure, aeration and drainage;
- Increases soil fertility as organic matter decomposes;
- Reduces soil erosion;
- Prevents soil compaction by reducing traffic;
- Makes lawn maintenance easier;
- Presents a well-cared for appearance



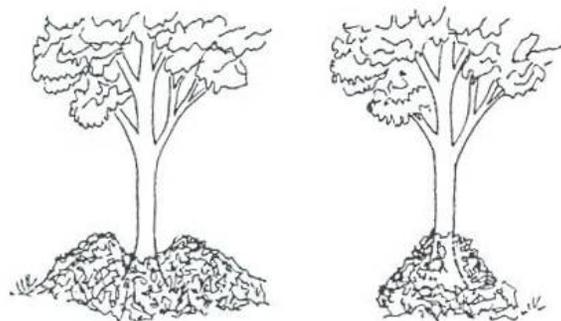
## How to Mulch Properly

- **No-higher** than the heel of your hand, generally 2-4 inches. If using finely textured or double shredded mulch, use 1-2 inches because these materials allow less oxygen to the root zone.
- **Not against the trunk** - keep all mulch 3-4 inches away from the trunk of the tree or shrub, allowing the root flare zone to show just above ground level.
- **To the tree's drip line** if possible. Remember that the drip line moves out as the tree grows.
- **Other Tips** - If a "fresh" look is desired each season, apply more mulch to reach the 2-4" depth or lightly rake the existing mulch lightly to achieve a finished look

## Problems Associated with Over-Mulching

Incorrect mulching is becoming the number one cause of death of trees and shrubs. When mulch is applied improperly by over-mulching or piling up mulch against the trunk of the tree the following problems occur:

- **Root Migration** - when mulch is placed more than about 4 inches deep, roots tend to "migrate" up into the mulch during rainy periods or when the area is irrigated. This is partly due to (temporarily) favorable root growth conditions in the mulch and partly to the suffocation of deep roots due to mulch-induced water-logging of the underlying soil. Then, when drought conditions occur, volcano-mulched plants may come under severe stress because many roots are growing in the mulch material which has considerably less water-holding capacity than real soil
- **Root Suffocation/Root Rot** - tree roots must be able to take in oxygen. When mulch becomes waterlogged, root growth declines and the tree dies.
- **Inner bark death** - Mulch piles high onto the trunk decreases gas exchange killing the inner bark.



Incorrect Mulching

- **Habitat for rodents & insects** - mulch layers against a tree trunk provides a perfect environment for these pests. If >50% of the tree circumference is damaged, girdling occurs and little can be done to save the tree.
- **Fungal & bacterial diseases** - these organisms grow and reproduce in the moist, dark environment

that over-mulching provides. They gain access to the tree through stressed, decaying bark under a thick mulch layer, causing cankers, killing the inner bark, starving the roots and killing the tree.

- **Excessive heat** - thick layers of mulch begin decaying and produce heat (similar to composting)
- **Waterproof layers** - mulch can become a matted barrier that prevents the penetration of water and air, causing root dehydration.

## Symptoms of Decline

Death from over-mulching is gradual, with symptoms sometimes taking 3-5 years to express themselves. It starts with the decline of plant vigor and rate of growth.

- Off-color leaves (pale or marbled)
- Abnormally small leaves
- Poor twig growth
- Die-back of older branches
- Rotting, peeling trunk bark under the mulch are classic signs which get worse every year, and at which point they are recognized, it is too late to apply corrective measures.

## How to Correct Over-Mulching

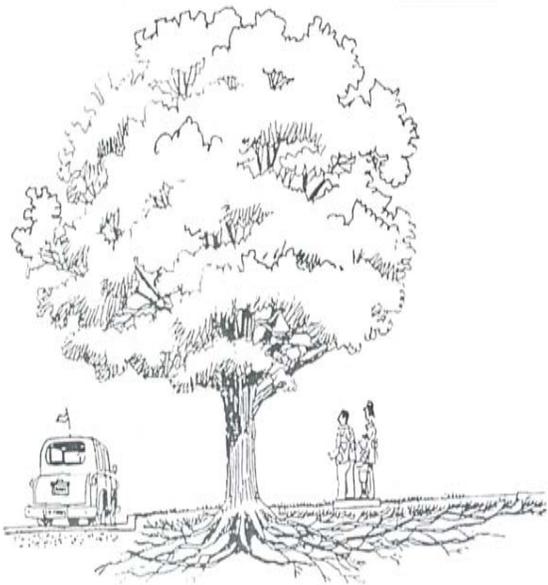
The best way to determine if you have a mulch problem in your landscape is simply to dig through the mulch layer to see how thick it really is. If it is excessive (over 4 inches), rake out to the drip line, breaking up crusted or compacted layers, leaving a thickness of 1-2" of mulch in place. Visually inspect the root flare zone (where the base of the tree goes into the soil). If problems are detected early, by you or an arborist, you can help to curb more serious problems. Complete root zone excavation may be necessary and is best performed by a professional arborist.



## What to Do?

The best way to determine if you have a mulch problem is simply to dig through the mulch layer to see how thick it really is. If it is excessive (over 4 inches), spread it out to the drip line or remove much of it. Sometimes a light raking of existing mulch is sufficient to break up any crusted or compacted layers that repel water.

A visual inspection of the root flare zone or trunk collar (where the spreading base of the tree goes into the soil) is the best way for you or an arborist to check the condition of the trunk for possible rot, pest chewing or diseases. If detected early on, removal of mulch to allow drying out may help curb more serious problems. Complete root flare zone excavation may be necessary and is best performed by a professional arborist.



**Remember: Keep the bark dry and the roots moist.**

## Extension Horticulture Help Desk

Drop off samples at the office or leave a message about your insect, disease, or gardening question.

Staffed by Master Gardener Volunteers. Call 703-792-7747 or email [master\\_gardener@pwcgov.org](mailto:master_gardener@pwcgov.org)



Help us go **GREEN** & save a tree!  
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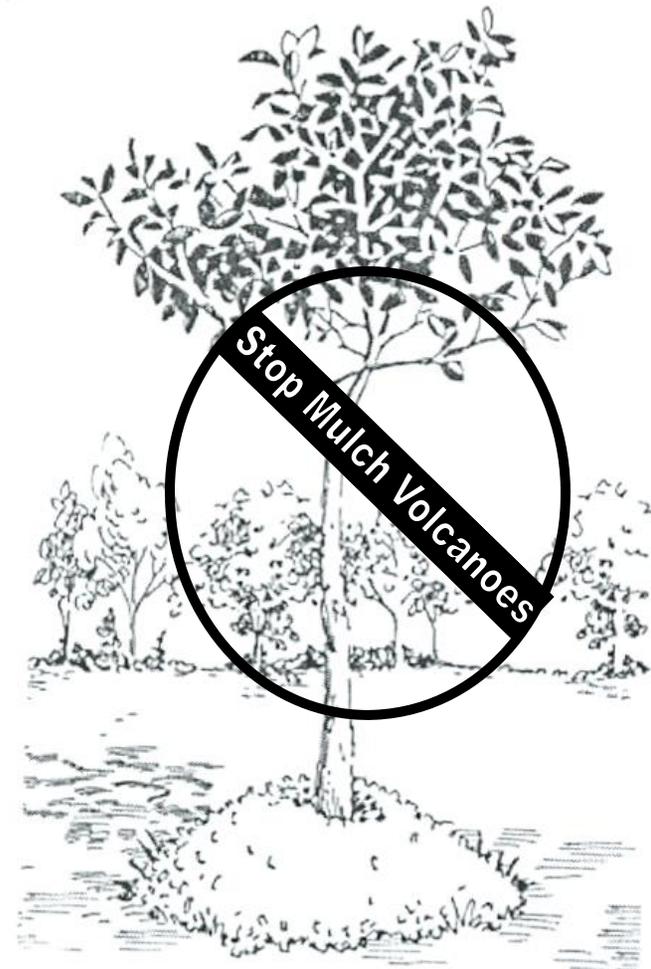
If you are a person with a disability and require any auxiliary aids, services or other accommodations to participate in any of these workshops, please notify Virginia Cooperative Extension at

703-792-6285/IDD PC 1-800-828-1120.

A handwritten signature in cursive script, reading "Paige E. Thacker".

Paige E. Thacker, Extension Agent, Horticulture

## Mulch Out, Not Up Proper Mulching Techniques and Problems Caused by Over-mulching



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