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## **Extension Solutions for Homes and Gardens**

by Paul J. Pugliese

### **“Volcano Mulching: An Erupting Landscape Problem”**

Now that old man winter is right around the corner, many folks are considering winterizing their landscape plants with a blanket of mulch. A 2-3” inch layer of mulch is an excellent way to protect the roots of trees and shrubs by moderating soil temperatures and conserving soil moisture. Even though trees may appear dormant in the winter, their roots are still actively growing and require consistent moisture to survive. Mulching is also one of the most important cultural practices to help newly planted trees and shrubs get established and keep them healthy. And remember, fall is always THE BEST time to plant trees and shrubs!

Unfortunately, there has been a growing trend among many professional landscapers and homeowners toward placing a deep layer of mulch (12 inches or more) in a 2-3 foot diameter pile around newly-planted trees and shrubs. It looks like a volcano at the base of the tree. I’ve also observed many homeowners raking leaves or pine straw into volcanoes around mature pine trees and hardwoods. Though a “mulch volcano” may be better than no mulch at all, it is definitely not good for plants in the long run! As the old saying goes, “too much of a good thing, is probably *not* a good thing.”

Mulch volcanoes can cause severe drought stress on newly planted trees during the establishment period for two reasons, according to Chris Starbuck, of the University of Missouri. First, it encourages the wrong type of root growth. 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 deeper roots from mulch-induced water-logging of the underlying soil. The roots grow up, rather than down during wet periods. As a result, these shallow roots are not very drought tolerant when the rain stops. And, when the mulch volcano dries out, plant roots may experience more extreme water stress.

Another problem is that the mulch volcano can act as an umbrella, shedding water to the surrounding area. The surface of mulch volcanoes can become hydrophobic (repelling water) due to fungal activity. Water runs off the volcano, rather than moving into it. This is more common in high carbon mulches like ground wood, wood chips or sawdust, but it can also occur in bark mulches. Newly planted trees are totally dependent on water in the root ball until their roots grow out into the surrounding soil. If the root ball soil is kept dry by the umbrella effect of a mulch volcano, the tree will suffer severe drought stress during establishment. In either case, a mulch volcano goes from one extreme of being too wet to the other extreme of too dry. Remember, roots need consistently moist, well-drained soil to thrive.

Water aside, Starbuck notes other problems associate with mulch volcanoes. These include promotion of fungal canker diseases associated with constant moisture around the lower trunk; stress from poor gas exchange by the cells in the bark that results in bark decay/rotting; and direct damage from termites and rodents that may live in the volcano.

So, when deciding on the best approach for mulching trees and shrubs in the landscape, go for a walk in the woods to see how Mother Nature does it. Trees in their native habitats rarely have individual mulch rings. Plants tend to share a common area that is nicely mulched by decomposing leaves that are releasing nutrients back into the soil. Also, the mulch layer is rarely more than 2-3” inches thick and never in the form of a volcano!

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