Leaflets News and Information for the Arborists of Michigan

Photo 1: Excessive mulch is becoming a popular landscape practice that can lead to many short and long term landscape problems.

Photo 2: "Volcano" mulches may initiate a variety of detrimental issues such as diseases, root suffocation and girdling roots. This unfortunate technique is becoming widespread in the landscape.

Photo 3: Hard mulches such as rocks and stone may cause serious plant issues. Although trees are thought to be strong, these rocks will impede trunk growth and, hence, the uptake of water and nutrients.

Photo 4: When utilizing mulch in landscapes, if possible, try to know the source of mulch. Diseases and insects may be transported in mulch. In this particular photo, Armillaria root rot fungus has killed this tree (lower trunk-white mold); the fungus may be transported to new sites, and there is a potential for subsequent valuable plant loss from this deadly pathogen.

The Plant Doctor's LANDSCAPE TIPS

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GOOD MULCH, BAD MULCH

INTRODUCTION:

Tree pruning, tree removals and other garden/landscape activities produce large amounts of organic refuse. There is no better way to manage plant refuse than to recycle it into "natural" and "organic" products. The application of mulch to landscapes has been an increasingly popular technique that has both beneficial and detrimental consequences for our landscape plants.

GOOD MULCH: BENEFITS OF MULCH

Moisture Retention: A layer of mulch on the soil around trees, shrubs, annuals and perennials retains moisture in the soil. Landscapes that are mulched will require less frequent watering. And new transplants generally have a much greater chance of survival and establishment when there is mulch present.

Plant Protection: Damage to landscape plants from lawn mowers, frequently called "lawn mower blight," and from weed trimmers, is all too common on stems and trunks of landscape plants. Wounds created by lawn mowers and weed trimmers may ultimately prove fatal to our valuable landscape trees and shrubs due to direct physical damage or to the introduction of diseases through wounds. Mulch provides a physical and psychological barrier to protect our plants.

Aesthetics: Mulch also greatly enhances the beauty of our landscapes. Many individuals love the fresh sophisticated appearance of a newly mulched garden and landscape. Some individuals prefer color-enhanced mulches.

Fertilizer Nutrients: Mulch may help prevent fertilizer runoff and leaching by retaining them during heavy rains and irrigation. Mulch may also provide natural phyto-nutrients as it breaks down during a natural decomposition process.

BAD MULCH: MULCH MADNESS

As with most things we do in life, we often can get too much of a good thing. Too Much Mulch (TMM) may be detrimental to plants and the larger landscape in general. TMM, a.k.a. "volcano mulch" or "mountain mulch" (Photos 1 & 2), may stimulate a variety of problems we do not want and which we tried to avoid by initially applying mulch. Following are a few examples of the consequences of TMM.

Moisture Inhibition: Excessive mulch may actually impede moisture. Fungi may grow at various depths in the mulch and create a hydrophobic condition, analogous to "localized dry spot" in excessive turf thatch conditions. These layers of molds will not permit water to pass through.

Anaerobic Conditions: TMM also may initiate anaerobic conditions that inhibit the natural oxidative process we call composting. Composting will occur in various efficiencies depending on the amount of oxygen present. Incomplete composting or incomplete decomposition of organic matter may result in anaerobic conditions and the production of various organic chemicals that are toxic to plants, either in gaseous or liquid form.

Elevated Roots: TMM or excessively dense mulch may not allow air to penetrate sufficiently to the roots; roots need air to take up moisture and nutrients, and adjust to soil depths accordingly. With TMM, roots adjust by growing high into the mulch and result in elevated roots and associated problems such as girdling roots (roots which circle stems and trunks, eventually causing plant strangulation). With elevated roots, plants have difficulty adjusting to excess moisture and drought conditions. Other hardscape mulches may result in similar issues (Photo 3).

Disease: One of the really serious side effects is that TMM favors the infection of our plants by diseases such as Phytophthora collar rot. Another concern is that disease agents may be transported in mulch. For example, a tree that has been killed by the fungus Armillaria (Photo 4) may be chipped into mulch and transported to another landscape; when that Armillaria-infested mulch is placed around trees or shrubs, they may eventually be killed by the fungus.

RECOMMENDATIONS:

To attain the desired benefits of mulch, we should only apply mulch to a maximum depth of 2-4 inches. In recent years, the application of excessive mulch seems to have reached epidemic proportions. In fact, there seems to be a competition on who can Pile it Higher and Deeper (PH.D). Also, many prefer the appearance of fresh mulch every season; to decrease the accumulation, old mulch may have to be occasionally removed. To avoid unwanted transmission of diseases, if possible, it's a good idea to know the source of the mulch that is intended for landscape use.