



The Perils of Over-Fertilizing Plants and Trees

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Understanding the difference between fertilizers and amendments is important in plant care. Fertilizers provide essential nutrients to plants in form of soluble salt compounds, and directly affect plant growth. Soil amendments indirectly affect plants by improving the physical or chemical properties of soil.

When applying fertilizer, always read and follow all label directions carefully - too much fertilization can permanently damage trees and plants. Excess fertilizer alters the soil by creating too high of a salt concentration, and this can hurt beneficial soil microorganisms. Over-fertilization can lead to sudden plant growth with an insufficient root system to supply adequate water and nutrients to the plant. Poor root structure reduces the number of flowers and fruit production, and can result in plant growth spurts that won't be supported or sustained. Fertilizers also add nutrients that are essential to plants in the form of soluble salt compounds. Soluble salts are minerals easily transported and dissolved in water, and fertilizers must be dissolved in water for uptake by the roots of plants and trees.

Too much fertilizer can not be naturally dissolved by rainfall or irrigation water; instead evaporation occurs more often than leaching. As such, excess soluble salts, the minerals, stay behind in the soil, and the soil is altered. Too much soluble salts raise the soil salinity and alter the pH; lower pH makes nutrients less available to plants. Low pH soil is acid and high pH is alkaline. The majority of plant nutrients are most available if the soil pH is neutral, between 5.5 and 7.5, and nutritionally balanced. Ornamental fruit and vegetable plants are susceptible to salinity.

Other injuries to plants and trees are caused by over-fertilization: one is iron chlorosis. Plant roots exert force to extract water from the soil, and excessive fertilization causes roots to shrivel, making it difficult for them to absorb water. Root rot and roots being more susceptible to disease also occur. Too many soluble salts causes leaves to wilt and yellow, leaf margins and tips to turn brown, defoliation and slow or no growth. Too much fertilizing also causes plant stress and weakens them, making them susceptible to diseases and insect attacks, particularly sap-feeding insects.

Before reaching for fertilizer, test your soil to see if any nutrients are lacking. It's best to avoid fertilizer and improve your soil instead with amendments such as home-made or purchased organic compost, vermicompost, cured manures, cover crops, decomposed leaves, alfalfa or bone meal emulsions. If fertilizer is used, natural organic fertilizers are preferred because they release nutrients more slowly for plant growth. Non-organic or commercial fertilizers are concentrated, increasing the risk for plant damage and upsetting natural organisms in soil.

Join Master Gardener Heidi Napier at this Saturday's public education class: Living With Oaks. Learn about California's enduring oak trees, and how to care and protect them on cultivated landscapes. The free July 27th class is from 9:00 a.m. to noon at the Veterans Memorial Building, 130 Placerville Drive, Placerville, California.

El Dorado County Master Gardeners are at local farmers markets to answer your garden questions. Additionally, Master Gardeners are available to answer questions at our office Tuesday through Friday, 9 a.m. to noon, by calling (530) 621-5512; walk-ins are also welcome. The office is located at 311 Fair Lane in Placerville. For more information about our public education classes and activities, go to our Master Gardener website at http://cecentralsierra.ucanr.org/Master_Gardeners/, and you can also check us out on Facebook.