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## Fertilizing Woody Ornamentals

Fertilizers may seem an appropriate “silver bullet” to improve performance of your woody ornamentals. However, fertilizers should be applied with discretion to woody landscape plants. Fertilizer applications are only justified when nutrient deficiency symptoms are present. Fertilization may also improve performance where a plant’s roots are restricted by streets, curbs, containers, or other structural features. Conversely, unnecessary fertilization can result in weak wood, poor structure, increased water consumption, increased herbivory, pollution of the environment, and other unwanted outcomes.

Many times plant problems are caused by poorly adapted varieties, poor planting, poor soil drainage, compaction, or improper irrigation practices. All of these factors influence the root system which will directly affect growth and vigor. Fertilization will not correct these problems and, in some cases, can hasten the decline of a plant. Also look closely for disease, insect, or gopher activity. Careful observation and investigation will usually provide clues to causes of plant problems.

Nitrogen deficiency symptoms are poor growth, yellowing of older leaves, and sparse foliage. If nitrogen deficiency is suspected, apply small amounts of fertilizer during the growing season. Fertilizer applications should be placed where plant roots are present. This is often near the drip line (vertical projection of the canopy to the soil surface). Inorganic nitrogen fertilizer is easily leached from the root zone with irrigation or precipitation. The leached nitrogen can enter ground water supplies or watercourses causing environmental problems. Light fertilization will minimize leaching potential. Nitrogen deficiency symptoms should improve within a few weeks of the fertilizer application.

Phosphorus deficiency is rare in woody ornamentals (I have never observed it). Phosphorus deficiency symptoms are reduced growth, a bronze or purplish tinge to the leaves, and in extreme cases, the leaves will develop necrotic (dead) areas. Phosphorus has decreased availability in our alkaline soils. Like nitrogen, phosphorus applications should be placed near the roots. Plant uptake and response may also be slower than you would expect for nitrogen fertilization.

Potassium deficiency symptoms are subtle and therefore difficult to observe. Potassium is important in the regulation of photosynthesis. Deficiencies will most likely be found in areas with sandy soils. Potassium is always present in complete fertilizers (products with all three numbers, i.e. 10-10-10).

Iron deficiency is fairly common in the southwest. Like phosphorus, it is made unavailable by alkaline soil conditions. Symptoms of iron deficiency are yellowing of new leaves. These new leaves often have green veins and older leaves will usually appear normal. The easiest way to correct iron deficiency is to apply a foliar spray of chelated iron. Symptoms should improve within two weeks of the spray application. Cool soil temperatures in early spring can also exacerbate iron deficiency symptoms.

Soil sulfur can lower pH, temporarily increasing phosphorus and iron availability in alkaline soils. Soil sulfur reacts with water to create localized areas of decreased alkalinity. An application of soil sulfur will last two to three years.

Fertilizers are packaged and marketed in several different forms: granules, pills, tree stakes, liquids, and timed release. Granules and liquid are broadcasted. When granules are applied, be sure to irrigate immediately otherwise nitrogen will volatilize to the atmosphere. Tree stakes and pills are simpler to use, but the fertilizer ends up being more concentrated where the product was placed. Timed release products are very easy to use, but are more expensive. Organic products (manures, cottonseed meal, feather meal, etc.) are also timed release because soil microbial activity slowly breaks down the organic substances.

Remember to carefully evaluate whether or not you need to fertilize your woody ornamentals. Natives and drought tolerant species usually will not typically require fertilization. This is often due to native mycorrhizal associations present on undisturbed sites. Plants that originate in more humid environments often prefer acid soils. Since it is nearly impossible to create acid soil conditions, these plants will likely display nutrient deficiencies and respond well to fertilizers.

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