

Your Sago Palm May Have Manganese Deficiency

Larry Williams

August 14, 2003

There are certain essential plant nutrients that are naturally low in most Florida soils. One necessary nutrient that is often found in insufficient quantities in Florida soils is manganese.

Even though manganese is needed in very small quantities (referred to as a microelement, formally called minor or trace element), Florida's sandy soils are naturally very low in this nutrient. In addition, manganese is easily leached out of our porous sandy soil with rainfall and irrigation. This is yet one other reason why people that irrigate too often are not doing their lawns, landscapes, and gardens a favor.

The fact that this element is readily leached is compounded by improper soil pH. When the soil pH is below 5.5 (slightly acidic), manganese is more easily leached from the soil. On alkaline soils, with a pH above 6.5, manganese becomes fixed in a chemical complex that makes it unavailable to plants. This is one of the reasons why it is recommended to maintain a soil pH between 5.5 to 6.5 with most landscape and garden plants. Areas around building sites are very often deficient in manganese because the lime from mortar gets into the soil and raises the pH above the desirable level.

Correctly identifying the deficiency is half the battle. Often, the deficiency symptoms are mistaken for other problems. Unfortunately, a soil test alone can't be relied on as a means of determining the cause of a specific deficiency. This is because a soil test will show that a particular element is in the soil. But, it will not indicate that the element is in a form that your plants cannot use. So, in addition to a soil test, careful observations of the symptoms are a must in diagnosing the problem.

Any one or more of three principal symptoms may reveal a manganese deficiency. The first is chlorosis (yellowing) of the leaves, which may be interveinal (occurring only between leaf veins) or may cover the entire leaf. The second symptom is a noticeable reduction in the size of leaves, branches and fruit. The third is necrosis (dead tissue), which may occur in patches or over entire areas of a plant. In some cases, chlorosis and necrosis will both be observed on manganese deficient plants. But, you won't usually see all three symptoms together.

It's very common to see manganese deficiency in sago palms. In this case it is called frizzle top. This name is descriptive because the new growth begins to turn yellow, then brown and takes on frizzled appearance.

You'll need to use manganese sulfate to correct the problem. Many times, a person will go into a garden supply store and ask for manganese sulfate and get magnesium sulfate, which is Epsom salt. It's interesting that magnesium is an essential plant nutrient as well, but using magnesium sulfate to correct a manganese deficiency will not work. Make sure to get manganese sulfate to correct a manganese deficiency.

The amount of manganese sulfate required will vary from one ounce, for very small plants, to five pounds, for very large trees. In addition, have your soil pH checked to see if it is in a desirable range. Visit the UF-IFAS Leon County Extension at 615 Paul Russell Road to pick up a soil test mailing kit.

Your Sago Palm May Have Manganese Deficiency

Larry Williams is Horticulture Agent for the University of Florida IFAS Extension in Okaloosa County.