

sites. Adjusting the pH or adding magnesium sulfate will control Mg deficiency. Applying a complete fertilizer will usually correct N, P and K problems. The most limiting minor elements are iron and manganese with iron most often limiting. Our studies have shown that iron deficiency of oak, white pine and sweet gum can be corrected with chelated iron or more effectively with trunk implants of ferric ammonium citrate capsules. Manganese deficiency, particularly with maples, can be corrected with sprays of manganese

sulfate or prevented by implants of the same material prior to bud break in early spring. For more detailed information on fertilizing landscape plants contact your local Cooperative Extension Service Agricultural Agent. Agents have soil and plant testing information available to assist in obtaining specific recommendations.

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## ABSTRACTS

Thomas, G.M. and G.O. Poinar, Jr. 1977. **Diagnostic service identifies insect pathogens.** California Agriculture 31(11): 10-12.

The Department of Entomological Sciences at the University of California in Berkeley offers the only diagnostic service in the United States with equipment and experienced personnel for formal laboratory diagnosis of insect diseases. The Diagnostic Service started in 1944 and as an aid to university entomologists, rapidly grew into a world-wide service. The Diagnostic Service identifies pathogens causing insect diseases, discovers new pathogens, particularly those that are potential biological control agents against crop pests or vectors of plant, animal, and human diseases, assists in controlling diseases affecting beneficial insects, gathers information on the host range and distribution of various pathogens, and maintains a reference collection of insect pathogenic microorganisms.

Beard, J.B. 1977. **Selecting mulch for successful seeding.** Grounds Maintenance 12(7): 21-22, 24, 26.

Successful grass establishment from seed is achieved when a uniform stand of the desired seeded species grows to a mature stable sod without significant loss of soil, seeds, or seedlings from wind and water erosion. Seeding may fail if mulching is not practiced. The following list of criteria for mulch selection is presented as a guide: 1) effectiveness in controlling wind and water erosion; 2) ability to provide a favorable microenvironment for seed germination (moisture and temperature); 3) availability of the mulch in the quantities needed; 4) freedom from weed seeds and compounds that are potentially toxic to seedlings; 5) cost of material (including shipping) and its application; and 6) method and ease of application for a given site condition. Many types of mulching materials are available: straw, hay and grass, excelsior, shredded bark, wood chips, and wood shavings, fibers, woven nets, ground corn cobs, sawdust, and peat moss, burlap, and elastomeric polymer emulsions.