University of California Cooperative Extension

THE GREEN SCENE

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FORMOSAN TERMITES

Recently, a few articles have appeared saying that wood mulch made from downed trees in the New Orleans area could be for sale locally. These articles warn consumers that Formosan termites are likely be included in the mulch material because of infestations in the trees and debris in the aftermath of Hurricane Katrina. David Haviland, entomologist with UC Cooperative Extension Kern County, provides a response to these assertions:

"I don't believe this is a very big issue. Formosan termites are a species of subterranean termite. This means that the queen will always be down below ground where there is moisture. The queen will not be in the wood of houses or in the wood of trees. Any termites up in the wood are just foraging and will not reproduce. Therefore, any wood that is chipped will not have termites with any reproductive potential. Additionally, the chipping process is quite violent, and I question the ability of significant numbers of termites to survive the process. Even in the case where these termites infest mulch piles before they are bagged up, the queens will still be down below ground in the soil that doesn't end up in the bag.

"The big issue with mulches is that they keep the soil moist, and help provide the termites with an optimal habitat. Therefore, the concern is more one of using mulch around a home and its attractiveness to termites than it is of transporting termites in mulch. This is of concern to people in places like New Orleans as well as an area in San Diego (the only place in California where these termites are known to exist).

"Regardless of the lack of threat, however, it is still a good idea to check any mulch you buy. This is no different than the need for checking plants from a nursery for pests, etc., before bringing them home."

WATER REQUIREMENTS OF LANDSCAPE PLANTS IN SUMMER

In the arid climate of the southern San Joaquin Valley, landscape plantings are almost always irrigated. The change of seasons greatly affects the irrigation requirements of these plantings, and irrigation clock settings should be adjusted quarterly to promote plant health, to conserve water, and to reduce the likelihood of root diseases.

Water use requirements for plants in landscapes vary greatly by season, and are often expressed as inches per day. In the summer, the reference value for daily water use in the vicinity of Bakersfield is about 0.25 (1/4) inches per day but may be higher during periods of high temperatures and wind. In autumn and spring, water use of about 0.15 inches per day is typical, and in winter the water requirements drop to a few hundredths of an inch per day. The seasonal changes in water needs suggest irrigation settings should be altered at least four times per year.

The advantages of quarterly adjustment of irrigation are several. Too little water results in stress to plants, which may result in aesthetic injury, such as brown margins of leaves. A subtle but more damaging effect of water stress is increased susceptibility to wood borer attack, especially for fruit trees. As trees become larger, the root system increases in size and a larger volume of soil can be tapped for water; however, it is an error to think trees will automatically adjust with time (acclimate) and somehow be free of the need for supplemental irrigation at maturity. Windbreak plantings I have observed which had water reduced or removed are often severely damaged by insect attack. Trees in unirrigated situations, e.g. the mountains, do survive with only rainfall. However, their seedling survival rate is low, many grow very slowly, and insect problems are frequent, especially after several dry winters.

The tendency in most residential landscapes, however, is to over- rather than under- irrigate. Too much water predisposes plants to attack of fungi of the water mold group (oomycetes, phycomycetes), which need plenty of water to thrive, as their common name indicates. These fungi include important pathogens, such as *Phytopthora* and *Pythium*, which can damage roots of fruit and shade trees, and herbaceous ornamentals. These pathogens are most active when soil temperatures are elevated, i.e., during the summer months. Plants from areas with Mediterranean climates (dry summers, cool and wet winters), including California natives, Australian species, and those from southern Africa, are generally more susceptible to root rot than are plants from the eastern or northern US or the wet tropics. Excessive water applied to turfgrass in winter also favors development of weeds, especially crabgrass.

Changing the frequency of irrigation rather than its duration is preferable for making seasonal adjustments. Each irrigation should wet soil to the rooting depth of plants, if possible. In other words, reducing the number of days irrigation occurs will reduce water applied to match plant needs. Run-times may need to be increased in summer during extended periods of high temperatures. Of course, we recognize that many other factors may affect how we manage irrigation at home, not the least of which is system design. Many home irrigation systems have very low uniformity coefficients, which would be intolerable in an agricultural setting or on a golf course. In a practical sense, irrigation settings should only be adjusted in combination with monitoring of soil between water applications. Monitoring may include checking soil dryness by probing with a screwdriver, soil tube, or shovel.

Water taken in by roots of green plants is the source of hydrogen for sugars formed via photosynthesis, and of the oxygen they release into the atmosphere. Plants require much more water than they metabolize, however, and this water is mostly transpired into the atmosphere as water vapor. The sum of water transpired plus water evaporated from the surface of the ground beneath plant foliage is called evapotranspiration. We can think of plant water needs in relation to reference evapotranspiration, ETo, which is the water needed by a six-inch tall stand of cool-season turfgrass. This amount of water is approximately the same as water evaporated from a meteorological class A pan surrounded by turfgrass. Water requirement of an individual plant is affected by its species-specific water use rate, the amount of leaves it has (leaf mass), and weather conditions, especially ambient temperature, relative humidity, wind, and intensity of solar radiation. Evapotranspiration requirements have been studied for several decades, and are well understood for agricultural crops and turfgrass species. Water requirements are not known precisely for the myriad of species grown in landscapes, with a few exceptions. Therefore, site-specific calculations of irrigation run times or water application requirements are difficult, and should be accompanied by monitoring and feedback.

EARWIGS AROUND THE HOME AND GARDEN

David Haviland
Entomology Farm Advisor, Kern County

European earwigs, often called pincherbugs, are some of the most readily recognized insects around home gardens and landscapes. They can also be one of the most frustrating to control. Larger-than-normal earwig populations that began last fall have become more than just a nuisance for many home gardeners. Earwigs have also irritated many homeowners who repeatedly find them indoors.

Despite many myths, earwigs are not aggressive and rarely pinch. Pinching is a defense mechanism that is only used when the earwigs are provoked. Another myth is that earwigs cannot fly. This is also false. Earwigs are very good fliers and are often attracted to lights at night. They only have one generation per year, and are most active and noticeable during the spring and fall. During the winter and summer they primarily go unnoticed down in the soil.

Earwigs are generally considered beneficial due to their predation on small organisms like aphids and mites. However, they can also damage plants by feeding on newly developing tissues. This damage is most pronounced in young plants in the cotyledon stage or on plants with only a few true leaves, plants that are too small to be able to compensate for the losses. For example, new bean and bell pepper plants can be killed or severely stunted when earwigs chew holes in the leaves or kill the growth terminal. The same is true for annual flowering plants emerging from seed or recently transplanted into a landscape. As annual plants mature, however, this damage becomes much less significant; mature landscape plants or perennial shrubs are relatively unaffected.

The first line of defense against earwigs is to remove environmental conditions that favor them. This includes areas that are cool and moist with lots of organic plant matter, such as layers of leaf litter under shrubs and trees that are frequently rewetted by landscape irrigation. These conditions were difficult to remove this spring due to the prolonged rainy season, but will be easier to obtain as the weather becomes hotter and dryer.

Hotter, dryer weather is also the optimal time to use trapping as an earwig removal strategy. This is accomplished by putting wet rolls of newspaper or corrugated cardboard in areas known to have earwigs. After feeding at night the earwigs hide inside the newspaper or cardboard and can be collected and discarded during the day. One easy disposal method is to drown the collected earwigs by shaking the newspaper or cardboard over a bucket of water with a small amount of dish soap. Another method is to shake them out onto a hard surface and introduce them to the bottom of a shoe.

If habitat management and trapping are not sufficient, chemical insecticides can be of use. Insecticides containing the chemical carbaryl (Sevin®) can be used on a wide range of plants and will kill some earwigs and deter others. Other broad spectrum insecticides, such as those used in home perimeter treatments can also be effective if they come in direct contact with the earwigs. Be careful, however, to read and strictly follow all label instructions and restrictions prior to their use in order to ensure the safety of people, pets, and the environment.

Additional information on the biology and management of earwigs is available at the University of California Integrated Pest Management web site (http://www.ipm.ucdavis.edu) by clicking on the first link for Pest Notes and then by clicking the link for Earwigs.

BACTERIAL GALL OF OLEANDER

Bacterial gall of oleander (*Nerium oleander)* occasionally appears in Kern County. It seldom causes the death of plants, but may weaken them and is unsightly.

Bacterial gall can be recognized by growths occurring on aboveground plant parts, including leaves, stems, or flower parts. Unlike the crown-gall organism, growths have not been found on the roots or any underground part of the stem. Irregular, blackish, canker-like lesions, consisting of rough, spongy tissue, swellings, and longitudinal splitting, may occur on young twigs and occasionally on old stems. The galls on older stems tend to be spherical.

Leaf galls, which occur mainly on the midrib and larger veins, may cause the leaves to curl and bend. The tissues surrounding leaf galls are frequently yellowed. Diseased seed pods may become curved and distorted, but produce normal seed unless they become infected while still quite young.

The disease is caused by the bacterium *Pseudomonas sevastanoi* ssp. *nerii*. Oleander is the only natural host of the bacterium. The bacteria are spread from plant to plant by splashing water during sprinkler irrigation or rainy periods; they also can be spread by pruning tools. Infected plants and cuttings are the main cause of widespread distribution.

Control, if desired, is simple. Prune out all infected branches well below any visible infection or discoloration (12 inches where possible). The pruning tools and the cut surfaces should be disinfected between each cut, such as with household bleach diluted 1:9 with water.

Use surface irrigation to avoid wetting the aboveground portions of the plant. Copper-containing sprays (such as Bordeaux mixture) applied during rainy periods may help control the disease if all visible infections are removed.

Portions of this information were taken from a One-Sheet Answer, Bacterial Gall of Oleander, by A.O. Paulus and A.H. McCain.

MASTER GARDENER CLASSES

UC Cooperative Extension, Kern County, will again be offering classes in horticulture this autumn. These classes will cover the science and culture of landscape and garden plants, and have been known as Master Gardener classes. While we no longer have a formal (i.e. volunteer) Master Gardener Program, we continue to offer classes as an educational outreach. A Master Gardener I class will be offered Monday nights, 6-9 pm, beginning August 21 and extending 16 weeks. Topics will include plant selection, soil science, landscape design principles, pest management with an emphasis on organic and IPM methods, as well as sessions on vegetable crops, deciduous fruits, and citrus. A syllabus will be available in early August.

A Master Gardener II class will be offered Thursday nights, also 6-9 pm, beginning August 24, also for 16 weeks. Topics will be additions to those covered in MG I, for example, roses. For more details contact John Karlik via email, jfkarlik@ucdavis.edu, or by phone 661 868-6220. The cost of each class will be $70. Registration will begin August 1, but not before. ■

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