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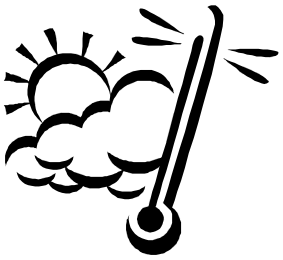

How Hot Weather Effects Plants

Hot, dry summers are rough on plants, especially on non-native plants and those weak from improper care. Since many of our landscape plants aren't naturally adapted to heat, they need special attention and care.

High temperatures speed up the normal living process of plants to a maximum rate at and above 90 degrees F. This means that most plants can take temperatures up to 90 degrees F. fairly well. Anything above that—the hotter it gets, the more they suffer! Of course, less tolerant or weaker

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Contributions, suggestions, input on the newsletter, let us know!

http://aggie-horticulture.tamu.edu/brazos

Rose Care and Fertilization

Roses may be the flowers of love and romance, but there's nothing romantic about spindly canes sporting spider mites, beetles and mildew instead of beautiful flowers. Just as romance sometimes needs a little helping along so do your roses. The bonus in keeping roses watered, fertilized, mulched and pruned is that the resulting healthy plants are less susceptible to pest attack.

Use a commercial rose food or a general-purpose fertilizer like 10-10-10 or 5-10-10 for the first two feedings. A formulation like 0-10-10 is best for the last feeding before frost. Apply the rose food as well as the water-soluble and foliar fertilizers available according to the manufacturer's directions. Dry fertilizers should be scratched into the soil beneath the leaves - but not touching the canes or bud union - and then watered in well. The older varieties of roses that only bloom once a year should be fertilized one time in early spring.

FEEDING AND SPRAYING ROSES IN SOUTH CENTRAL TEXAS

Your feeding program, like your spraying, should be done regularly. Roses are heavy feeders. To keep them growing vigorously, an organized program should be followed. Water rose bed thoroughly before and after food has been applied.

For miniatures use one teaspoon of liquid food per gallon of water. Give each plant about a quart. Dry rose fertilizer can be applied in place of liquid. Use according to directions. Liquid feeding in this period should be once a month. Mature climbers should be given double the amount given to Hybrid Teas.

- **June thru August** -- With the introduction of timed release fertilizers, a summer long feeding in one application is possible. These fertilizers are formulated to feed continuously for three to six months in our climate. Feed each average sized bush at least three or four ounces, working it lightly into the soil. Water thoroughly. If you don't care to use this type of product, continue feeding with a water soluble food (twice a month), or a monthly application of dry food. As the weather becomes hot, you may want to switch to soluble fertilizers as they are more readily available to the plants. Iron chlorosis occurs at this time; Sprint 330 can correct

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plants suffer even more. The longer high temperatures persist, the greater the injury to the plant.

Hot soils also hamper plant growth. Shallow-rooted and container plants are particularly affected by soil heat build-up. Deeper-growing roots penetrate to a level of better soil temperatures and moisture. Mulching the soil surfaces around plants and watering properly is a good idea to stabilize soil temperatures. The most obvious symptom of a plant's heat exposure and hot soils is persistent afternoon wilting, followed by foliage burn.

Hot air, particularly hot, dry wind, causes too much moisture loss from the plant's foliage. Some evaporation from leaves is normal, but when vital moisture is being evaporated faster than the plant's ability to replace it, leaves dry out and wilt. To be drought-tolerant, plants must have roots able to absorb as much, or more, moisture from the soil and do it as fast, or faster, than the foliage loses it. First symptoms of hot air injury are drying and browning at the tips and edges of older leaves. Then, tender new tip growth wilts, soon followed by dieback. Rapid moisture loss can cause tender leaves to turn black. Evaporation cools foliage, but if it doesn't get water from the roots fast enough to provide the evaporative cooling effect, the foliage gets hot, tender growth wilts and older leaves sunburn.

Exposure to the intense sunlight of bright, cloudless, summer days can be too much for sensitive plants. Reflected light from walls and other surfaces can also add to the problem. Stunted plant growth and a yellow-white "burn" on the upper surface of older leaves are familiar symptoms of too much intense sunlight. A good covering of leaves protects the tender bark of branches and stems from sunburn. If this shading is lost (or pruned off) the exposed tender bark will likely sunburn.

When some nutrients are reduced or limited, or their uptake inhibited, deficiency symptoms quickly appear. Such is the case with iron during hot weather growth. Wet soils, dry soils, not watering deep enough, salty or caliche soils, etc. will decrease the amount of iron plants can absorb from the soil. The yellow foliage symptoms of iron chlorosis appear as greenish-yellow leaves with dark veins. As iron deficiency becomes troublesome, the green color of leaves turns to yellow, then to white and finally brown as the tissue dies.

Using plants adapted to our hot climate is the best way to get vigorous plants with minimum care. Some plants just don't do well in the heat! They're difficult to maintain and expensive to replace. Plus, plants suffering the torment of harsh surroundings don't offer a pleasing appearance to any landscape.

Native, heat-hardy or at least tolerant plants are the most practical choices for local landscapes. Tolerant plants resist moisture loss from their foliage, and are more efficient feeders on limited soil moisture. They can better tolerate intense sunlight. Tropical plants lose water rapidly from their lush, tender foliage. To make matters worse, their less efficient rooting is often unable to replace foliage moisture as fast as it evaporates in the hot, dry summer air. Remember—plants give priority to new growth when moisture and nutrients are short, so older leaves are deprived. This is why older leaves show hot weather injury first.

The life span of non-adapted landscape plants is much shorter. As they reach maturity, they lose the natural advantage of youthful vigor and the hot climate takes its toll.

Plant conditioning is important. Just as athletes must condition for endurance, plants also can endure hot, dry weather better if properly conditioned. Plant during a season when roots can establish quickly so that they're ready to supply plant needs adequately by the time hot weather starts. Fall (September to December) is an ideal planting time for the Southwestern U.S. Transplanting during hot weather can be an exhausting experience for plants and gardeners. Proper watering and fertilizing favors good vigorous growth and the plant will better endure and recover from hot weather stress.

Plant location is very important. Shaded locations cut summer stress for heat- and sunlight-sensitive plants. Eastern exposures or open areas are generally preferred for blooming plants. Southern or western exposures are subject to direct, intense sunlight, as well as reflected heat. Because walled areas of these hot exposures build up and hold additional heat, only very heat tolerant plants can survive in these locations. Also, consider draft and wind exposure when positioning plants whose foliage may be particularly subject to burn by hot, drying air movement.

Soils that permit deep water penetration down through normal rooting depths, yet retain good moisture and nutrient content, are also important. Such soils favor the deep, extensive root development required to maintain strong healthy growth during hot summers. Heavy caliche soils can be improved by the addition of liberal amounts of organic matter along with clean washed sand.

Irrigation IS A MUST in order to maintain good plant vigor during hot, dry summers. Proper watering year round to promote deep extensive rooting is the key to summer hardiness. Be particularly careful not to over-irrigate during cooler seasons. Too much water drowns roots needed to supply enough water and nutrients to the plant during its peak summer needs. Keep in mind that all water used by plants comes from the soil. It's the most important of plant foods. "How long and how often to water" depends upon how long the soil retains moisture and how fast that moisture is being used. A

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this deficiency.

- **September thru October** -- With the advent of cooler weather and rain, your roses will begin their heavy fall blooming season. Once you have done your light fall pruning, you can apply a cup of organic rose food per bush and follow this two weeks later with a liquid feeding. Don't feed with either liquid or dry foods after the beginning of October. After heavy rains, it is a good idea to give your bushes a supplemental liquid feeding.

With regard to spraying, prevention is critical in keeping your roses free of fungus and insect problems. A hit and miss program will get you and your roses into trouble.

- **June thru August** - By this time of the year, if our weather is normally (hot and dry), you can lengthen your spraying interval for fungus problems to every 10 to 14 days. Insecticides should be used sparingly. The biggest problem that may occur at this time is an infestation of spider mites. A good way to treat this problem is to apply a hard spray of water to the bottom of the foliage every three or four days throughout the summer. This will interrupt the mites' breeding cycle. (The bushes will also benefit from the washing). A miticide such as Green Light Red Spider Spray may also be used.

- **September thru November** - Once the weather begins to cool off and the early morning and nights become more humid, follow the same spray program used during the spring for both fungus and insect problems. To prevent spray bum of foliage in all seasons, water rose beds thoroughly before spraying. In hot weather, spray in early morning or late evening when temperatures are cooler.

When spraying, it is very important to wear protective clothing; this should include a chemical spray mask, gloves and a long sleeved garment.

Mulch

Using mulch, especially an organic one, is about the closest thing possible to a garden panacea. Mulch keeps weeds to a minimum, the soil moist and loose and adds nutrients. Apply mulch in the spring just as the soil warms and before weeds start coming up. Mulch can also be applied anytime during the growing season if the weeds are removed and the surface lightly cultivated. Spread 2 to 4 inches of mulch over the bed, leaving some space open around the base of each rose. Replace the mulch as it deteriorates during the year.

For organic mulches, you'll want to use whatever is locally available and cheap. Some options include wood chips and shavings, shredded bark, pine needles, or chopped oak leaves. Extra nitrogen fertilizer may be needed when these mulches are first applied. Mixtures of materials are usually more satisfactory as they have fewer tendencies to pack down and, moreover, permit easy transmission of water and fertilizers. Many compost mixtures are available -- also a light layer of manure may be applied under the mulch.

Watering

Adequate soil moisture is indispensable to the vitality of roses. Seldom can you rely on the natural rainfall to be adequate. The rule-of-thumb is 1 inch of water each week, but the actual frequency of watering will depend on your soil and climate as well as the age of the plant. The goal is to slowly water until the soil is soaked 12 to 18 inches deep. Soaker hoses or a hose with a bubbler attachment are inexpensive solutions and keep water from splashing onto foliage and spreading diseases. Soil-level and drip-irrigation systems are more expensive but make watering a breeze.

Pruning

Pruning controls the size and shape of roses and keeps the modern varieties blooming repeatedly all summer long, as they flower on new growth. The supplies you'll need include a good, sharp, curved-edge pruning shears; long-handled lopping shears; a small pruning saw; plus a pair of leather gardening gloves.

Well-established varieties of modern rose bushes such as hybrid teas, floribundas, and grandifloras should receive a major pruning each spring after the winter protection has been removed and just as the buds begin to swell (usually about when daffodils bloom). Harsh pruning makes bigger, but fewer blooms. And, there is no report that anyone ever killed a plant with a pair of pruning shears.

All that's needed otherwise during the growing season is to remove and destroy any diseased foliage or canes and to dead head, or remove the faded flowers, cutting their stems just above the first leaf with five leaflets.

Most old-fashioned and species roses as well as the climbers that bloom only once a year flower on wood from the previous year's growth. They are pruned right after flowering.

Practically all rose plants are budded on a special root, or understock. Occasionally you may find a sucker, or shoot, growing from this root stock itself. These sucker canes can usually be identified by the different leaf size and coloring. Remove sucker growth by cutting the canes off as close to the root stock trunk as possible.

http://aggie-horticulture.tamu.edu/plantanswers/publications/roses/rose.html

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proper balance of moisture and air in the soil is necessary for roots to breathe and do their job. Irrigate to maintain favorable, not abundant soil moisture. Water long enough during each irrigation to allow moisture to penetrate completely through the plant rooting area, but no more often than necessary to prevent foliage wilt! Following this rule, you'll automatically adjust to the age and type of plant as well as to the differences in seasonal requirements. Deep, penetrating irrigations each time also keep soil salts washed downward out of the root area. A drip irrigation system is THE MOST effective, efficient method of watering.

Fertilizing during hot weather should be done with caution, if at all. Increased living processes of plants during hot weather use up nutrient reserves faster. However, rapid uptake of fertilizers by summer-active roots could result in fertilizer burn. Increase the fertilization frequency, but decrease the amount applied each time. Fall fertilization helps plants recover from summer exhaustion. Spring fertilization encourages strong growth to better withstand summer stress.

Organic mulches spread over soil surfaces under plants provide a practical insulation against summer heat. Mulch shades the soil and keeps it cooler. It also reduces soil moisture evaporation, therefore cutting the build-up of salt at soil surfaces. But remember, mulches retain soil moisture longer. Continue to water deeply each time, but not as often!

Pest control is very important during hot summers. Any injury or loss of foliage would be more harmful to plants during hot weather. So watch for pests and control them before severe damage is done. Apply sprays during mornings or evenings.

So, regardless of how long and/or hot the summer will be there IS a right way and a wrong way to insure that your plants thrive and survive.

http://www.plantanswers.com/garden_column/june03/4.htm

Dates to Remember:

The Bryan Library Series: gardening seminars will be held at the Bryan Public Library on the second floor, from 6:30PM-7:30PM.
Summer Gardening Series hosted by the Brazos County Master Gardeners at the Bryan Library
Free Community Program
Thursday, July 12- Junior Master Gardener Literature in the Garden
Thursday, July 19- Indian Legends of Texas Native Plants
Thursday, July 26- How to grow our own Cut Flower Garden
Thursday, August 2- Gourd gardening and art work

Tuesday, July 24th- Meeting: "Birds in the Brazos County Backyard" by Jim Anding,
Master Naturalist, retired teacher
College Station, TX
Meeting at 7 PM at the Brazos Center open to the public

Saturday, October 13th- Earthkind Rose Symposium
If you want beautiful easy-care roses, this symposium is for you!
Learn about Earth-Kind roses and how you can successfully grow them using practical soil management methods, efficient irrigation principles, and effective landscape management.
Speakers:
Dr. Steve George, Professor and Extension Horticulturist, Dallas, TX
Mark Chamblee, Owner, Chamblee's Rose Nursery, Tyler, TX
Gaye Hammond, President, Houston Rose Society, Houston, TX
Beverly Welch, Owner, Arbor Gate Nursery, Tomball, TX

Price $60.00 per person, pre-registration is required.
This includes a 2-gallon potted rose, course materials, refreshments, boxed lunch, tours of a national rose research site and a Southern Rose Brigade demonstration site.
Registration deadline is October 1, 2007

Hosted by Brazos County Extension with support from the Brazos County Master Gardeners
If you have questions please call Texas Cooperative Extension Brazos County at 979-823-0129.

White Grubs in Texas Turfgrass

White grubs are the larval stage of insects commonly known as May or June beetles (or June bugs). Sometimes referred to as grub worms, white grubs injure turf by feeding on roots and other underground plant parts. Damaged areas within lawns lose vigor and turn brown. Severely damaged turf can be lifted by hand or rolled up from the ground like a carpet.

Most turfgrass-feeding white grubs in Texas, such as the June beetle and southern masked chafer, require 1 year to complete their life cycle. Warm season grasses like bermuda grass, zoysia grass, St. Augustine grass and buffalo grass are readily attacked by both types of white grubs, with most lawn damage occurring during summer and fall months.

Having completed their life cycle in the soil, these beetles emerge in late spring to early summer and fly at night. During these flight times mating and egg-laying occur. Large numbers of beetles, primarily males, may be attracted to lighted windows or other lights at night. The females are less active fliers and less common around lighted areas than males. For this reason, turning off outdoor lights during adult flight periods may not substantially reduce subsequent white grub damage.

Peak flight times in the Brazos Valley typically occur in late June to mid July. During this time the female beetles dig into the soil to lay eggs which hatch in approximately 2 weeks. After hatching the white grub passes through three larval life stages and is easily recognized by the white C-shaped larva with three pairs of legs. The third life stage (instar) larvae are responsible for most turfgrass damage due to their large size. When cool weather arrives, white grubs become dormant until the following spring. After spending approximately 3 weeks in a pupal stage the insects emerge as adults the following spring-summer to begin the life cycle all over again.

White grub damage can be detected by the presence of irregular-shaped areas of poorly growing or dying grass. Turfgrass damaged by white grubs has a reduced root system and is easily pulled from the soil. Grubs should be readily found in the top few inches of soil. There are non-chemical controls, such as beneficial nematodes, available for controlling white grubs. Commercial nematode products are usually mixed with water to be applied to the lawn and can reduce white grub numbers by 50% or more. Proper timing of chemical treatments are critical for best results. The newer treatments of imidacloprid and halofenozide should be applied early enough to kill the smaller larvae. This timing of treatment for smaller grubs in the Brazos Valley is typically during July. The larger third instar larvae are more difficult to control. Later in the season where grub damage is already evident in lawns and larger grubs are easily found, products containing carbaryl or trichlorfon should be used. The active ingredient label on products should be examined to determine product content and presence of desired insecticides.

More detailed information about white grubs in turfgrass can be obtained in Extension Publication E-211. TAMU/Extension web sites can also be searched for additional information.