



University of California Cooperative Extension  
**THE GREEN SCENE**



Kern County • 1031 S. Mt. Vernon Avenue • Bakersfield, CA 93307 • 661-868-6220

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**HEATING WITH WOOD**

Wood may be used to provide heat during winter, although air quality regulations may prevent its use sometimes in some locations. The heat value of wood depends upon tree species, the moisture content, the kind of unit used to burn the wood, and how the fire is managed.

A standard cord of wood contains 128 cubic feet, the same volume as a stack 4 feet high, 8 feet long, and 4 feet deep. The net volume of wood after careful stacking will be about 80 cubic feet. Lighter softwoods contain less than half the heat value of harder woods per cord. For example, cottonwood (poplar) contains about 14 million BTU per dry cord, compared with about 28 million BTU in live oak. Eucalyptus varies from about 23 to 31 million BTU per cord, depending on species. Fruitwoods, such as almond, peach, or citrus, contain over 30 million BTU in each cord. Most pine species have about 20 million BTU per cord. For comparison, one million BTU of heat are contained in 15.4 therms of natural gas, 16.5 gallons of LP gas, or 293.1 kWh of electricity.

Air-dry wood contains twice the heat value of wet wood. Wet wood does not burn efficiently, as shown by the smoke generated. Heat generated by the fire is used to evaporate water in remaining wood, and the water vapor cools burning gases driven from the wood, preventing complete combustion and release of all the heat contained in them. The cooled gases may be deposited on the inside of the chimney forming deposits of carbon-containing molecules called creosote. These deposits may ignite, resulting in a chimney fire.

Wet wood usually takes from three to eight months to dry completely. To promote drying, wood should be stacked, preferably off the ground. A polyethylene solar dryer, made by stretching 4 mil clear poly and tacking to a frame around the wood stack, will hasten the process. Make the frame a little higher on the sun side and stretch the plastic across the top, leaving an opening for air circulation. As wood dries it splits; however, cracking is not a sure indicator of complete dryness.

Many different types of fireplace inserts and stoves are available. They often come with a rated efficiency which depends on design, including how air flows

through the unit. Much of the heat from a fire is generated through burning gases, and if this heat can be transmitted to the room the fire appliance is more efficient. Fireplaces without inserts have efficiencies of about 10%, but inserts raise efficiency up to 20%, and stoves may have efficiencies as high as 60%.

Although leaving an overnight fire on “slow-burn” is one way to wake up to a warm room, such a fire is not very efficient. Without enough oxygen, complete combustion cannot take place. Furthermore, the fire is not hot enough to burn flue gases, which contain much of the heat value of wood. Small hot fires are most efficient and release the maximum heat value of the wood.

University of California Cooperative Extension has a publication, “Heating Your Home with Wood” that we have chosen to reprint. It contains useful information about how to realize the most benefit from firewood. Besides listing heat values for 50 kinds of woods, it contains efficiency tips and safety information. It is available from the Extension Office at 1031 South Mt. Vernon Avenue.

Approximate Heat Content Per Cord of Different Woods Used for Firewood in California (Dry Basis) <sup>1</sup>			
Wood	Heat Value Per Cord (million BTU)	Wood	Heat Value Per Cord (million BTU)
Alder	15.7	Maple	19.6
Almond	32.9	Oak	
Apple	27.5	Black	22.6
Apricot	28.3	Blue	38.2
Avocado	20.7	Canyon live	31.7
Cherry	27.0	Coast live	28.5
Citrus	33.8	Olive	37.3
Cottonwood	14.0	Peach	32.5
Elm	20.7	Pear	32.0
Eucalyptus		Pine	
Blue gum	28.0	Digger	20.5
Lemon scented gum	30.6	Ponderosa	18.3
Mountain gum	24.3	Sugar	16.2
Red gum	30.6	Plum	25.6
Fig	23.3	Redwood	18.5
Mahogany, mountain	39.8	Walnut	
Manzanita	32.0	English	22.5

<sup>1</sup>Wood specific gravity and heat value are both necessary for calculation of fuel value. Both have been determined for most woods but data were estimated for a few uncommon species, based on local laboratory experience.

## PLANTING AND EARLY CARE OF DECIDUOUS FRUIT TREES

The salubrious climate of the southern San Joaquin Valley allows many kinds of deciduous trees fruit to thrive. The typical winter fog is also beneficial for deciduous fruits because fog events increase the number of chilling hours. Mountain locations are also suitable for fruit species, such as apples, which require additional chilling and cooler summer temperatures to develop quality fruit. However, mountain sites may experience an increased risk of late spring frost, an event that can destroy the crop. Desert locations may be suitable for some fruit varieties, and good yields may be obtained in home orchards – again if late frost does not injure the crop.

When selecting fruit trees, be sure to obtain a variety suitable for your location. The widest selection is often found in early spring when bareroot trees become available. These allow the buyer to see the root system and also generally cost less than container stock. Some fruit species are easier to grow than others, and in order of easiest to more difficult I rank them as follows:

- Apricot (vigorous, self-fruitful, few pest problems, what to do with all the apricots?)
- Plums (often partly self-fruitful, with few pest problems)
- Cherries (although cherries are sensitive to over-watering, and resulting root rot. It's sometimes difficult also to keep birds from devouring the crop.)
- Peaches
- Nectarines
- Apples (summers are too warm in Bakersfield for many varieties)
- Pears (fireblight often kills young trees)

Some varieties of each species are better adapted locally than others. Variety selection may also obviate some pest problems. For example, mid-season peaches mature during the annual green fruit beetle flight, whereas later- or earlier-maturing varieties avoid this insect. If cross pollination from another variety is necessary for fruit set, such as for sweet cherries, be sure to get a compatible pollinator, or use a two-in-one or three-in-one grafted tree. It's a good idea to label varieties so that if a tree dies it can be replaced. Similarly, labeling branches of grafted trees may prevent an inadvertent pruning cut which completely removes the pollinating limb. Nema-guard rootstock is preferred for stone fruits where nematodes may be a problem, which is most locations in Kern County. For apple trees, various rootstocks of the MM series give varying degrees of dwarfing. A list of fruit varieties suggested for home orchards located on the valley floor is available

from the UC Cooperative Extension Office, 1031 S. Mt. Vernon, Bakersfield.

When planting, choose a location which will receive plenty of sunlight and, if possible, will be protected from wind. Allow plenty of space for the mature trees. For full-size trees, 20 to 24 feet is a typical spacing. Soil amendments or fertilizer in the planting hole are generally not necessary and may prove deleterious. After planting, it's best to settle the soil with water rather than tamping. We recommend applying whitewash, or white latex paint diluted 1:1 with water, to the trunks of young trees to prevent sunburn.

There are three pruning phases in the life of a deciduous fruit tree. The first occurs at planting, when the first cut should be made to foster development of a low vase-shaped structure, since an open-center form is preferred for almost all deciduous fruit species on the San Joaquin Valley floor. After a bareroot tree is planted, the trunk should be headed at 24-32 inches above the soil surface. A vase-shaped structure rather than a single leader is desirable for most deciduous fruits. Trees in agricultural fields need higher heads for equipment passage, but a low head greatly facilitates tree care at home. This cut may be emotionally difficult to make, because it may seem \$10 of a \$15 tree has been summarily removed. In reality, this most-important cut serves to establish low origination points of structural branches, which will allow most pruning, harvesting, and pest management to be performed without a ladder during the life of the tree. When we purchase a deciduous fruit tree at the nursery, we are paying for a well-developed root system and the grafted (scion) variety.

The second phase of pruning serves to establish structure, and this phase begins the year following establishment. The low heading cut of the previous year will result in several branches growing outward at various directions and angles, and three or four strong, upwardly growing branches spaced at intervals around the trunk should be selected as scaffolds. Additional branches can be removed. Pruning the next few years emphasizes structural development, including a well-spaced system of scaffolds and laterals.

The third phase of pruning begins with the onset of maturity, which is 5 - 7 years for most fruit trees. At this stage, the tree should be pruned for fruit production, with consideration of the location of fruiting wood. Pruning at this stage serves to invigorate and direct growth of the tree, with a goal of keeping it forever young; that is, annually producing new fruiting wood. A detailed discussion is beyond the scope of this article, but principal determinants for pruning are the location and amount of fruiting wood. For more information we have a booklet, Pruning Deciduous Fruit Trees, which may be picked up at our office for \$3.

## **SPRING 2012 HORTICULTURE STUDY TOUR**

Our heritage of landscape and garden design in California borrows from the rich tradition of Northwest Europe and the Mediterranean region. Those regions contain a number of botanic gardens and beautiful landscapes that well illustrate design principles and plant selection, and are well worth sharing. The year 2012 is a noteworthy year for horticulture, since the once-per-decade Dutch horticultural exposition called the Floriade will be held.

The overall objective of our tour is to broaden participants' knowledge and appreciation for landscape design and plant selection. The tour also provides opportunities to learn about managing green space and irrigation. Also, we have an opportunity to learn about specific aspects of history and culture and to experience the flavor of specific countries. In 2012, over a 10-day period, we intend to begin the 2012 study tour in the south of France with its Mediterranean landscapes and plant palette similar to ours. After four days on the French coast, we go north to Paris for two days, and then to the Netherlands, where we plan to visit not only the Floriade but also Keukenhof, the world's premier garden for bulbs, with about seven million bulbs in-flower.

Although I provide structure for the tour and accompany the group, there is considerable free time, including free days to use as individuals wish. This tour is designed to be participatory, since it is hoped each person will bring his or her knowledge and experience to share.

The dates for the 2012 tour are April 15 – April 26. For more information on the tour content, including a full itinerary by email, please contact John Karlik by email at [jfkarlik@ucdavis.edu](mailto:jfkarlik@ucdavis.edu), or at 661-868-6220. For information on the travel arrangements, please contact John Siston at Travel Gallery of Pasadena, [john@travelgallery.com](mailto:john@travelgallery.com), 1-800-858-6999.

## **REMEMBER THE RULE OF THE SUPERBOWL FOR TIMING APPLICATION OF PRE-EMERGENT HERBICIDES**

Keeping turf vigorous and dense improves its competition against invading weeds. In some situations, a herbicide application to areas that have had crabgrass or other spring annuals can give months of weed suppression. For crabgrass, the most effective time of year for herbicide control is before seed germination. A handy way to remember the time to apply preemergent herbicides for managing crabgrass and other spring annuals in turf is the Rule of the Superbowl. On the valley floor of Kern County, crabgrass begins to germinate during the second week of February in most years. Colder weather will delay crabgrass germination; warmer weather will hasten it. Most pre-emergent herbicides applied to turf have activity mostly against germinating seeds rather than young plants, and therefore need to be applied before plants emerge. Since the Superbowl is played at the end of January or very early February, the game provides a reminder for application time. Usually there is no football the previous week, so that might be time to purchase materials.

## **30<sup>TH</sup> ANNUAL LANDSCAPE MANAGEMENT SEMINAR**

Harold Kempen, a long-time UC Cooperative Extension advisor for weed management, began a landscape management seminar, and this year will mark its 30<sup>th</sup> anniversary. The meeting is planned for Thursday, February 23, at Hodels on Olive Drive. We have a number of guest speakers planned, including Walt Bentley and Richard Molinar, who lived and worked in Kern County for many years. Jim Downer, an expert on root diseases, is scheduled to speak about that topic. We also look forward to a demonstration conducted by Kurt Hembree of UCCE Fresno County showing the relationships between operating pressure, nozzle size, and droplet size. We have applied for 8 hours of PCA credit, including one hour of laws and regulations. This year I am co-sponsoring the meeting with Abate-a-Weed, and they are handling the business arrangements including registration. Cost is \$35 which includes lunch. For details please call me at 661-868-6220, or send an email to [jfkarlik@ucdavis.edu](mailto:jfkarlik@ucdavis.edu).

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