



# Pinal County Cooperative Extension Garden & Landscape Newsletter April 2009



## ELIMINATING WEEDY FIRE HAZARDS

A relatively wet winter has produced a nice display of desert wildflowers this year, but it has also, unfortunately, produced a bumper crop of weeds. Even now, those weedy plants are beginning to mature and dry. Soon, if they are left unattended, they will become a significant fire hazard.

Rain is critical in the desert. We need it. We crave it, but we also know it is a mixed blessing. Sooner or later, the heavy growth of green plants spawned by the rains will, under the early summer sun, wither and die. When that happens, fire becomes a significant threat. A little extra work around the house now can often prevent catastrophe later on.

The soil everywhere is a tremendous reservoir of seeds of all kinds. Plants adapted to the desert have ways of avoiding drought. For the luscious, green, rapidly growing plants that spring up almost magically after a prolonged season of rain, their protection is in their seeds. Capable of lying dormant for years until conditions are just right, they are stimulated by sufficient moisture to do their thing.

These weedy plants are everywhere. We see them growing alongside roads, in alleys and vacant lots. Once the plants have finished producing their seeds, they die. Their dried remains are the fuel that makes all of these areas a fire hazard. We need right now to begin taking steps to protect ourselves.

I know, I know...you are saying that there are so many green weedy plants everywhere that the task is well nigh impossible. You are absolutely correct if most people ignore the problem. However, the job is not too big to do if we all work together.

First, take a survey of your property. Check the alley behind your home. Look behind outbuildings, along fence lines and in hidden service areas. Weeds will grow in many places where we normally do not look. When growing in locations next to buildings or other flammable structures, they can become a fire hazard without us even knowing.

Next, try to decide the type of weed with which you are dealing. Do not worry too much about plant names. Instead, focus on their growth habits. Are they tall and rangy? If so, they will probably burn easily when dry. Focus on these first. Do they have a deep taproot, or are they shallow rooted. This information will determine the best way to control the weeds, and in some cases the tool that you will use.

Plants with a deep tap root often will regrow from buds in the crown, the place on the stem located close to the ground. If possible, cut these off just below the crown to reduce the chance of regrowth. Plants with shallower root systems can usually be easily removed.

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## REDUCE ENERGY BILLS WITH SHADE TREES

Before you let the spring tree planting season pass by, you might want to think about the savings shade trees trim off of the summer cooling bill.

No matter how the weather vane swings in central Arizona, there is always one constant. Sooner or later, without fail, the thermometer will top 110°F. Whether we like it or not, summer heat, and the cooling bills of summer, are constants of life in the desert.

Coping with these constants becomes an annual challenge for most. Now, with predicted “brown outs” and increases in energy costs occurring perhaps as soon as this summer, the challenge may become even greater. It may be time to take a page out of the past and reconsider the use of landscape trees and vines as a means of helping cool the home.

The desert Southwest receives more sunshine than any other part of the United States, with Pinal County receiving more than 80 percent of possible sunshine each year. While the winter sun provides enough warmth to make outdoor activities pleasant and helps heat the interior of buildings, brilliant summer sunshine causes intense heat which limits human outdoor activity and pushes up the cooling bills.

Plants cool by reflecting the sun's rays away from buildings and outdoor living areas. Unshaded walls absorb the heat from the sun's rays and transmit the heat to the interior of the building.

Wise placement of shade trees and vines can result in significant reductions in the high cost of cooling homes and commercial buildings.

Consider these facts. A dense shade canopy will screen out at least 80 percent of the solar radiation that falls on a human being, outdoor living area or buildings in our area. A wall in full sun transmits three times the heat of a shaded wall while an unshaded roof adds twice the heat of a shaded one to the interior of the structure. Shading can reduce maximum high temperatures inside a typical house by 20 percent.

The bottom line is well established. Energy savings in shaded over unshaded homes can be significant. Other benefits that come from trees and shrubs in the landscape include a more pleasant and inviting outdoor living area and enhanced property values. All taken together, shading makes a lot of sense.

While most will agree that shading is a good way to reduce the cooling load within the home, the question of how can be a little more complicated. Here are a

few tips to consider when planning shade in the landscape.

The ideal situation would be to have summer shade and winter sun falling on the home. Winter sun, again, helps heat the home and saves on heating bills during the winter. Summer shade reduces heat loading during the warm months. In order to obtain both of these benefits, it is important to choose deciduous trees, or trees that lose their leaves during winter. Evergreen trees and shrubs will give shade year-round and eliminate most heat gain during the winter.

Favorite deciduous shade trees include the moderate to low water requiring desert adapted trees like Mesquite (*Prosopis* species), Palo Verde (*Cercidium* species and *Parkinsonia aculeata*) and Sweet Acacia (*Acacia farnesiana*). Heavy water users include Elm (*Ulmus* species), Ash (*Fraxinus* species), Hackberry (*Celtis* species) and Mulberry (*Morus* species). In an attempt to cut back on water consumption and allergens, many people have shied away from these heavy water users, but the fact remains, the trees providing thicker shade are generally those that use the most water. When selecting a deciduous tree for home shading, the question of balance between water requirement and cooling benefits is a critical issue. The choice of tree also hinges upon owner preference and taste. Fortunately, the landscape industry provides plenty of choice when it comes to plant material.

If winter heating from solar gain is not considered essential, the choice of plants can be widened to include the evergreen plants. Evergreen or partially deciduous trees and shrubs that do well in the hot environment and provide good shade include the Orchid tree (*Bauhinia* species), Thevetia (*Thevetia peruviana*) and Jacaranda (*Jacaranda mimosifolia*). Other plants include the Carob (*Ceratonia siliqua*), Bougainvillea (*Bougainvillea* species), Australian willow (*Geijera parviflora*), Silk oak (*Grevillea robusta*) and Bottle tree (*Brachychiton populneus*).

In addition to planning for shade, do not forget to take two other key considerations into account. First, consider mature tree height when choosing your plant materials. In just a few short years, the perfect sized tree now may be a giant later on. Take care to select and place trees so that they, at maturity, will not block your or your neighbor's rooftop solar collectors, cause structural damage to buildings or roofs or invade sewer lines or septic systems.

Second, remember that the sun, and shadows cast by the sun, will move throughout the year. What may

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## UNDERSTANDING FERTILIZERS

Citrus, other fruit trees and most ornamental trees and shrubs need a good feeding during the spring months of February, March and April.

When plants are actively growing, they need a steady supply of nutrients. Some desert plants, like cacti, mesquites, and palo verdes have the ability to make their own nitrogen fertilizer without any outside help, but others are entirely dependent upon us to give them the proper amounts at the proper time.

Three of the key nutrients come from the air free of charge. The others come from the soil and water that support the plant's growth. If any of the nutrients are lacking, growth problems can occur. An understanding of basic plant nutrition and an elementary knowledge of fertilizer formulations can help clear the confusion and ease the process of selecting the nutrients right for the job.

All plants need to acquire certain chemical elements from their native environment in order to grow and reproduce. Normally, these essential elements will be provided by nature from the air, the weathering of rock particles and from the decomposition of dead plant and animal remains.

In situations where the native rock is deficient in one or more of the essential nutrients; or in areas, such as the deserts of Arizona, where the overall amount of decomposed organic matter in the soil is low, these essential elements may not always be available in the amounts necessary for proper plant growth. Then, and only then, should extra nutrients be added to the soil.

Of the seventeen elements essential to plant growth, three are provided free of charge from the air surrounding the plants. These are carbon, hydrogen and oxygen. Three others, nitrogen, phosphorus, and potassium, are used in fairly large amounts by plants and because of this are often called macronutrients. The rest are used in fairly small amounts and are called micronutrients. When the natural environment is deficient of either macro- or micronutrients, they can easily be added with the proper application of fertilizers.

The next concept that needs to be understood is that of fertilizer formulations. Fertilizer formulations package and hold essential elements in a way that makes it easy to determine how

much to apply for proper plant nutrition. They also simplify the process of properly applying nutrients to the plant's environment.

Fertilizers can be formulated into either dry or liquid fertilizers. The majority of fertilizers sold are dry, either as a powder or as granules. Some formulations compress granules into stakes which then can be easily driven into the ground with a hammer. These dry particles dissolve when they contact water and, separating out into their basic elements, become available to the plant roots for absorption. The process of becoming available can be very short, making the nutrients available almost immediately, or it take as long as two weeks or more depending upon the weather and chemistry. Nitrogen, for example, may take two weeks to be transformed by microorganisms from the ammonium form into the plant world's cake and ice cream, nitrate.

Liquid fertilizers are less common, and sometimes more expensive; yet they play a valuable role when used correctly. They are easy to use, especially on container plants. There is little risk of burning tender roots as long as the directions on the label are properly followed during the dilution stage. The nutrients are also immediately available. Liquids are less practical for large-scale use because they usually cost more and often must be used more frequently than the dry formulations. Liquid formulations are most often used for container plants with relatively small, confined root systems; and for foliar feeding.

Foliar fertilizers are applied directly to the leaves of plants through which the nutrients are directly absorbed. Many liquid or water-soluble fertilizers include instructions on using the product for foliar feeding. Actively growing plants seem to show the best response to this method of application but the effect is usually short lived. While the plant responds quickly to nutrients absorbed through the leaves, it generally is only a short term solution. It is often best to use foliar feeding as a quick solution followed by the more long lasting benefits of soil applied fertilizers. Make sure the concentration of foliar fertilizers applied is not stronger than what the label recommends as burning of leaf tissue can occur. Temperatures over 85 °also facilitate damage to the leaf tissue.

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## AFRICANIZED HONEY BEES

With the rains this year, the Africanized honey bee populations have been increasing. Everyone who lives in the desert, especially newcomers who have not yet experienced a season of rain and lots of pollen, needs to know about Africanized honey bees.

We haven't been too worried about these bees the last couple of years because the weather has been relatively dry, moisture-wise. Because bees need water and pollen in order to thrive, bee colonies have not been too active. This year, however, should be different. The recent rains should produce a bumper crop of pollen from native plants, and from weeds that are all too common. The availability of water and pollen this year foreshadows a strong possibility of another active bee season.

Experienced people well know that Africanized honey bees are nothing to disregard. Their nasty temperament makes them extremely dangerous and we just can not afford to let them take up residence anywhere near our homes. Now is a good time to review the facts about these important, but sometimes threatening insects.

The renewal of honey bee activity this spring would not be surprising because of the recent rains and warm temperatures that are soon to arrive. Standing water and flowers brought on by the winter rains provide the two most important raw materials for honey bee success: pollen and water. With these excellent conditions, honey bees, both wild and domestic, will soon be waking up to a new year.

While domesticated honey bees that are regularly managed by qualified beekeepers pose little threat to people, pets and domesticated animals; wild honey bees can be either a nuisance or a danger, depending upon where they are and how long they have been there. For those who may be new to Southern Arizona, it may be helpful to explain about our current honey bee situation.

In our area, there are two main forms of the honey bee, the European honey bee, which has been with us for centuries, and the Africanized honey bee, which is a relatively new arrival in the Southwest. Both strains are quite similar in all ways, except for behavior. They look alike. They have similar work habits. They produce the same type of honey and they are so closely related that they can exchange

genes during the reproductive cycle. In fact, the differences that once made it possible to distinguish between the two types are now, through the reproductive process, quickly fading away.

It is also important to know that colonies of honey bees frequently and regularly go through a process known as swarming. The creation of a swarm of bees is usually the natural and expected process of forming new queens, dividing up the workers and sending out colonizing swarms to set up housekeeping in new locations. This is the process by which bees expand their numbers and ensure the safety of the species.

Swarming can also occur, especially with Africanized honey bees, when the colony decides that they are in the wrong place. When the colony judges that the location is too exposed, too hot or too dry, or not enough food available, the entire hive may simply move out on a moments notice. This type of swarming is referred to as 'absconding'.

With the good water and flower conditions expected this year, we should anticipate bee colonies to divide up into swarms quite frequently, even if the rains stop and the standing water and food supply largely dry up. Because of this it is extremely important to keep up our guard even when we would least expect new arrivals.

In spite of all the similarities, and the benefits, of the two types of honey bees, it is the difference in behavior between the two strains that should keep us on our toes. It is no secret that the Africanized honey bee has a nasty temper. While the European honey bee is a relatively passive and mild bee that has proven to be easy to work with and stable in its living arrangements, the Africanized honey bee continually shows its normal, impulsive self.

Okay, let's stop here for an aside. I do not want anyone to blame the Africanized bees for all the worry they have caused. It really isn't their fault. They are simply prompted by an urgent instinct to protect the hive. In their proper place, they cause little problem. Unfortunately, their habits are so dangerous that they have to be considered social outcasts and unacceptable pests in and around our homes and working areas.

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Now, let's take a look at control measures. Forget about using weed killers. Most of the herbicides sold for home use are not strong enough to kill these large, tough weeds. Herbicides are best used when the weeds are still small, no more than four inches tall. Our best bet now is to use some type of tool to cut them off at the base.

The fastest and easiest way to make quick headway against a large weed population is the standard lawn mower. Another tool useful for quick cleanup is the string trimmer but be sure that you protect the trunks of any trees and shrubs from injury. The high velocity string can rip and shred tender bark tissue. In tight, hard to reach spots, it may be necessary to use a standard garden hoe or one of its relatives.

You may be wondering about the large expanse of native desert that surrounds us on all sides? There, you and I have absolutely no control. Fortunately, most of these areas are classified as rangeland. You may have noticed that there are many cattle feeding on the desert this spring where in past years there have been relatively few. Not only do these animals produce a marketable product, beef, but by converting the desert growth into food, they also reduce the fire hazard. Occasionally bands of sheep are also pastured on the open range.

Finally, what should we do with the plants after we have cut them down? I like to use mine as a mulch around my trees. Shredded pieces are better than whole stems, but both work okay. The plant residues slowly break down over time to release nutrients into the soil and to help cut down on water evaporation from the soil.

Composting is also another possibility. Plant trimmings make excellent, rich compost if correctly handled. If you, yourself, are not into composting, there are those who would love to incorporate your weeds into their composting programs.

While the rains bring us much needed water to fill our parched reservoirs, encourage a bumper crop of wildflowers and brighten our spirits; we also have to deal with the downside appearing in the form of weedy plants. By working together we can minimize the ultimate danger to our homes and our neighborhoods.

## **-REDUCE ENERGY BILLS,** Cont'd from Page 2

cover a part of the home in June, may not cover it in August or September as the sun makes its way back across the horizon towards the solstice. This is a key issue and should be considered when planting outdoor activity areas, vegetable gardens and areas for sun or shade-loving plants.

Shading has long been a key tool for cooling homes and outdoor living areas even before the modern age. While modern conveniences have taken a lot of the sting out of living in the desert, shading continues to be an important tool in taking the sting out of opening the power bill.

## **-HONEY BEES,** Continued from Page 4

When honey bee hives, especially wild, untended hives, are established in close contact with places where people, pets and livestock live and work, problems can arise. Since wild colonies, those found outside a reputable beekeeper's box, are probably Africanized, once again let me stress that it is essential to watch for, and eliminate, any hives that locate onto our property. Otherwise, we set ourselves up for a serious stinging situation in the future.

Now just because you see honey bees in your yard or around your swimming pool or sprinkler heads, there is no reason to panic. Honey bees live in large groups of up to 60,000 bees. Single worker bees can fly as far as 6 miles to collect pollen and nectar from flowers to feed themselves and their offspring. Sometimes they visit hummingbird feeders for sugar water. They also collect water from birdbaths, swimming pools or pet watering dishes. Bees gathering food will sting only if they are trapped in clothing, stepped on or otherwise threatened. Single foraging bees should be left alone.

If you regularly see many bees, however, you should be alert to the possibility there may be a wild honey bee colony nearby. Look for numerous bees flying in and out of an opening such as a crack in the wall, in or underneath outbuildings, or through the cover of a water valve box. These wild, untended hives cause us the greatest concern. The vast majority of wild hives in our area are Africanized and since it is difficult to tell the good guys from the bad guys, we have to assume for our own safety that all wild hives are Africanized honey bees.

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Fertilizers are formulated according to the number of essential elements included in the bag or container. The label will always identify the chemical makeup of the formulation. The three numbers on the front of the bag tell the percentage of nitrogen, phosphorus and potassium in that order. A bag of 10-10-10, for example, will contain 10% nitrogen, 10% phosphorus and 10% potassium or pot ash. If there is a fourth number, it will be for a micronutrient carried in the formulation. In our area, that often is iron.

A complete fertilizer will contain all three of the macronutrients and there will be a number higher than zero in each of the three locations. An incomplete fertilizer will contain less than three nutrients and a simple fertilizer will contain only one nutrient, such as ammonium sulfate, 21-0-0.

In Southern Arizona, nitrogen will almost always be lacking in soils and most general fertilizers will include this element. Most local soils, however, generally contain sufficient phosphorus and potassium making it unnecessary to add these in a fertilizer. Occasionally, it may be necessary to add phosphorus, perhaps every third or fourth year. A common incomplete fertilizer is ammonium phosphate, 16-20-0. Rare is the situation where the third number, potassium, is needed in Arizona soils. For this reason, complete fertilizers are not often recommended for plants growing in native soils.

Urea is a nitrogen fertilizer which requires extra care. It is 46% nitrogen with no phosphorus and no potassium. More than double the amount of nitrogen found in ammonium sulfate, it can easily burn roots of plants when applied at the normal rate of ammonium sulfate, a common mistake.

There are fertilizers with many different nutrient ratios on the market. It is important to remember two principles when selecting a fertilizer ratio. First, the higher the number in the analysis, the stronger or more concentrated is the fertilizer. Second, the higher the concentration, the less should be applied at one time. Most recommendations for fertilizer applications to landscape and garden plants indicate that at least three applications per year should be made, never just one. This is for both plant safety, and to

minimize the loss of fertilizers below the root zone through leaching.

Slow-release or controlled-release fertilizers are balls of beadlike granules of complete fertilizer coated with resin, sulfur or some other permeable substance. When the granules are moistened, as during a normal irrigation, some of the fertilizer diffuses through its coating into the surrounding soil. Every time water is applied, this is repeated until the fertilizer is used up. Some products are effective for four months; others for up to eight months or longer.

Finally, all fertilizers, for best results, should be incorporated into the soil by digging or raking the pellets so that they are covered. The only exception to this rule are the nitrogen-only fertilizers which can be carried into the soil with the irrigation water.

Different plants require different amounts of fertilizer. For fertilizer recommendations for specific plants, consult a good plant nutrition reference or call us at the telephone number below.

Understanding how to select the right fertilizer for the specific task at hand can save time and money as well as prevent unnecessary injury to the plant.

Trade names used in this publication are for identification only and do not imply endorsement of products named or criticism of similar products not mentioned.

## **-HONEY BEES...**Continued from Page 5

If you do find a swarm or an established bee colony in your neighborhood, keep everyone away from the bees. Consult the telephone directory for pest control operators who will remove or destroy the bees. In most cases, a swarm resting on a tree or structure will usually move on to a new home in a very short period of time. If their presence lasts for several days, they are probably setting up a new hive.

Do not try to remove the colonies yourself! Never shoot, throw rocks at, pour gasoline on, burn, treat with pesticides, or otherwise threaten established honey bee colonies. Do not ignore bee colonies around your home, even if they do not seem to be a problem. Small colonies that have recently set up housekeeping may be docile at first, but can become more defensive as the colony matures. You should have wild honey bees removed immediately by a trained professional.

If you accidentally disturb a colony or are attacked, run away as fast as you can. Get to the shelter of a house or car as quickly as possible. Because the bees target the head and eyes, try to cover your head as much as you can, without slowing your progress. Do not flail or attempt to swat the bees, just get away fast.

Many people when they are attacked are tempted to jump into a swimming pool to get away from the bees. This is not a good idea. The bees are smart enough to know that you have to come up for air sometime. They tend to hover above the surface of the water waiting for you to come up for air. It doesn't take a lot of imagination to figure out what happens next.

If you see someone being attacked by bees, encourage them to run away or seek shelter. Do not attempt to rescue them yourself unless you have a bee suit and proper training. Call 911 for emergency help.

If you are stung by bees, you should examine yourself for embedded stingers. When a honey bee stings, it often leaves its stinger and venom sac behind in the skin. This will eventually kill the bee. Unfortunately, the venom sac is still functional and will continue to pump venom through the stinger into the skin until it is empty. Do not compress the stinger by trying to pull it out with tweezers of fingers. This will only squeeze

more venom into the wound. Scrape the stingers out using your fingernail, the edge of a credit card, or with a dull knife. If you feel ill, if there appears to be an allergic reaction to the bee venom, or if you have been stung more than fifteen times, seek medical attention immediately.

The beneficial value of honey bees to our lifestyle makes the bee an important part of our living environment. Because of this, bees should be protected and managed to provide the needed resources of food and fiber upon which our lives are based. It is only the wild hives and swarms that require our careful and constant attention.

Here is the take home message. If we all stay alert and keep the swarms of bees from setting up permanent homes in urban areas, they will keep on moving out into their natural element where their nasty tempers will not generally be a threat to people. By keeping our living areas clear of these nasty-tempered pests, we can continue to enjoy the benefits without enduring any unnecessary risks.

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