



Pinal County Cooperative Extension Garden & Landscape Newsletter February 2008



AFRICANIZED HONEY BEES

We really need to talk about Africanized honey bees.

I know, I know. We talk about this topic all the time, but 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 sure to begin growing shortly. 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 animals.

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,

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IT'S TOMATO TIME

It is official. The annual race to see who gets the first tomato of 2008 is underway.

Each year, serious tomato growers push the envelope of weather and temperature to see who can bring in the first tomato of the season. Each person has their own recipe of planting date, fertilizer, variety selection and management style, but the target is always the same: bring in the first and best quality tomato of the year.

The secret to producing good tomatoes in the desert is to get them planted early and expect to finish harvesting before the heat of summer sets in. Planting early means putting out transplant sets in February, babying the plants through any late season frosts that might occur and pushing the plants hard to get maximum production before the high temperatures arrive in June. While frosts and freezes in February can make for anxious moments, planting early is definitely the best way.

Growing tomatoes in our area is definitely a challenge because tomatoes are simply not well adapted to the low deserts of Arizona. If they were, there would be a viable field-grown tomato industry in Arizona. Tomatoes do not do well in southern Arizona because of the high temperatures of summer, the alkalinity of the soil, and the bright sun that easily burns the tender fruit. If you want to produce a good eating tomato, you must contend with these obstacles.

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TIME TO PREPARE SPRING GARDENS

It's time to wake up your garden from its winter slumber and put seeds, or transplants, in the ground.

From about mid-March on, vegetable and flower gardens can be planted with reasonable confidence. Frosts and freezes should be pretty much over and the warming spring weather will help push plant growth quickly towards maturity. If you have been waiting for the right time, it's here.

We expect the average date of the last killing frost in Central Pinal County to be somewhere around the 6th of March. Of course, that date will vary with local conditions. It will also vary from year to year. On the few occasions where late winter and early spring storms drop temperatures below the freezing mark, young, susceptible plants can be covered with quilts, blankets or other cloth coverings for the few nights where damage might occur.

So, how do we start a vegetable or flower garden? In our Cooperative Extension pamphlet, "Ten Steps To A Successful Vegetable Garden", the process is clearly laid out. Let's work our way through the steps one by one.

First, choose an area that receives plenty of sunlight. Most annual flowers and vegetables, especially fruiting vegetables like tomatoes, squash and melons do best with full sun exposure. Leafy and root vegetables will tolerate partial shade. Do not plant gardens under or near trees or large shrubs; their roots will rob fertility and water from the vegetable plants. Avoid planting vegetables in the narrow, shaded space between house walls and fences.

Second, make sure you have a loose, fertile, level, well-drained soil. If possible, avoid heavy clays and high sand soils. If caliche is present, it must be dug out and removed. Avoid areas that are crusted with alkali salts or infested with blueweed, Bermudagrass, nutsedge or other perennial weeds that can seriously crowd out desirable plants.

Third, ensure a successful garden by choosing good varieties. Select varieties that are known to do well in our area. Not all plants sold locally are best adapted to local conditions. Most successful gardeners tend to stay with varieties that have proven their worth. However, it is a good idea to try one or two new varieties each year. This practice will not only provide an interesting change, but it will also spearhead a search for new varieties that perform well for you.

TEN SIGNS THAT A TREE IS PLANTED IN THE WRONG PLACE

Planting a tree in a location where it will fail to thrive, or where it will become a nuisance, can be a costly mistake.

Trees, shrubs and bedding plants provide many benefits to a residential landscape, including beauty, shade and a welcoming feel to outdoor living areas. A handsome, functional landscape also adds value to the home and can put extra money in the pocket when the home is sold later on. In order to maximize these benefits, it is important to properly plan, install and care for the landscape.

Unfortunately, far too many mistakes are made at planting. In horticultural terms, it is a mistake to plant a tree where soil or environmental conditions will not favor good growth, where it will eventually need regular and heavy corrective pruning or where it may need to be completely removed within a few years.

Heavy corrective pruning destroys the natural form and beauty of the tree and opens it up to possible infection by plant disease organisms and insect pests. Removing and replacing a tree results in the loss of the plant's immediate value. It also means a loss of the valuable time required to bring the tree to maturity. By taking the time to do the project right the first time, the owner or manager of a valuable landscape can save both time and money.

Here are ten common signs that a tree has been planted in the wrong place. If you are getting ready to install a landscape, a good first step would be to take a drive or walk into any residential or commercial area and learn to recognize these mistakes. Then, as you plan your landscape, make sure that they do not show up in your yard.

Sign number one: the tree is growing into a power line. Tree limbs growing into electrical lines strung from power poles can be dangerous hazards to people and property. Maintenance crews regularly trim out branches that grow into and around these lines. Trees that have been trimmed for safety often have their natural form, and their value, either seriously damaged or destroyed. Many times these trees end up being removed completely. When selecting a site for a tree, place it in a location where it will grow in its natural form without danger of growing into power lines.

Sign number two: the tree branches grow into the street. Planting a tree too close to the street will cause the tree eventually to spread its branches into

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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 moment's 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 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.

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.

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

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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 or fingers. This will only squeeze more venom into the wound. Scrape the stinger 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.

IT'S TOMATO TIME, Continued from Page 1

Tomatoes set fruit only when night temperatures are above 55°F and when day time temperatures do not exceed 90°F. Because of these temperature limitations, the total production season of a tomato plant is quite narrow and the successful gardener must make good use of this time to get in a good crop.

The best way to plant tomatoes is to set out 6-inch transplants beginning in mid-February in the northern and central parts of the county and in mid-March in the southern and eastern parts of the county. The eastern and southern parts of the county are a little higher in elevation and the resulting cooler temperatures delay the planting window.

Tomatoes can be planted from seed successfully, but seeding requires an additional six weeks to get the plants germinated and up to size. This means that seed must be placed in the ground or in pots for transplants in January with adequate cold protection to ensure that the plants will be ready to produce fruit at the earliest possible time.

The short-season varieties which will produce fruit in less than seventy days are the best for our area. The Cherry-type varieties and Early Girl are good examples of short-season varieties. Columbia and Rosa are also good varieties but these plants are extremely hard to find. Longer-season varieties are quite risky because of the looming hot weather waiting to sear late developing fruit. Another variety that seems to work well in our area is Celebrity. Many avid tomato gardeners like it for its quick growth, good fruit setting capability and flavorful fruit. The larger fruited varieties, like Beefstake and Better Boy should probably be avoided because they seem to produce a lot of vines but little fruit. Now I know that there are some of you out there that absolutely love these varieties and can coax them into fruiting. All I am saying is that quite often, for many growers in our climate, they simply do not meet expectations.

To beat the summer heat, it is important that tomato plants get off to a good start quickly. Proper soil preparation before planting and good nutrition and timely irrigation during the growing season will help build a productive vine in a short amount of time.

All tomatoes require good light in order to produce effectively, but they must be protected from the harsh, burning sunlight of summer. Many successful tomato gardeners plant their vines with an eastern exposure so that the plants get adequate sunlight during the

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less harsh morning hours while being protected from the intense heat of the afternoon. If you prefer to plant out in the open, rig a shade cloth of nursery fabric or burlap over the plants to protect both the vines and the fruit from afternoon heat. Stay away from planting beds next to a masonry wall with a western exposure. These areas almost always spell disaster for tomatoes.

Good soil preparation will encourage the development of the deep root system necessary to provide water and nutrients during the fruiting season. Our desert soils can easily become compacted making it difficult for plants to develop an adequate foundation for later growth. Loosen the soil by spading or tilling down to at least twelve inches and work in two to four inches of composted manure to help keep the soil from compacting again after the next irrigation. Roots need not only water and nutrients, but also air. A compacted soil which limits the availability of these essentials will slow and stunt the development of tomato plants.

Soil fertility should be moderate. The new crop will need adequate nitrogen for growth but too much can burn tender roots and slow development. It is best to work in ammonium phosphate fertilizer during final soil preparation and before planting. This will allow the plant to have adequate amounts of both nitrogen and phosphorus as it begins the season. Additional nitrogen can be added a little at a time during the growing season to ensure that the plant does not run short at critical times. Nitrogen is best added during irrigations so that the water will carry the nitrogen down into the root system.

Protect your young, tender plants from cold and frost damage by placing a tall cage made of construction wire around the plant and cover the cage with a clear plastic to give a greenhouse effect. The plastic should be loose enough to provide some air circulation but tight enough to prevent frosty air from touching the plant. During warm days, loosen the plastic or remove it so that the plants will not burn from too much heat. The plastic should only be in place long enough to prevent frost damage. Once the danger of frost is past, it should be removed.

Other devices can be used to provide cold weather protection. There are a number of frost-related products sold in garden stores that will provide protection. Some people use plastic milk containers filled with water to provide early warmth and protection for small plants. During the day the sun heats the water inside the containers. The warm water, in turn, provides heat during the cold night time hours to protect the plant.

Proper irrigation is essential. Blossom-end rot on the fruit and fruit cracking are considered to be the result of growth spurts followed by growth checks. Growth checks are usually caused by heat and irregular irrigations. Ensure that the soil moisture is adequate during the entire growing season, but do not keep the soil too wet or root rot may occur. The decision to irrigate or not to irrigate is a critical step in the management of tomatoes.

The soil around tomato roots should remain moist, but not sloppy wet. The lush leaves and stems of the tomato require substantial amounts of water to support the process of transpiration, the life process that plants use to keep themselves cool. Because the roots are constantly picking up water, the supply needs to be replenished regularly.

The frequency and duration of irrigations is specifically dependent upon the type of soil in which the plant is growing. Sandy soils require more frequent irrigations, perhaps on a daily or every other day cycle, while clay soils may need to be irrigated only once a week.

To determine when to irrigate in your garden, dig down with a shovel or probe with a soil auger to a depth of about six inches and check the moisture levels in the soil. If the soil forms a tight ball and leaves a wet outline on your hand when you squeeze it, hold off irrigating until the ball of soil, while still cool to the touch, begins to crumble at the edges. The length of irrigation should be long enough to fill the entire root zone of the plant. Most tomato roots will be found in a band from ground level to about eighteen to twenty-four inches. Each irrigation should send water to at least this depth. Check your moisture depth with a probe or shovel. A probe will slip easily into moist soil but stop abruptly when it reaches dry soil. Place your fingers at soil level before pulling out the probe and you will be able to measure the depth of your irrigation.

Finally, manage the concentration of naturally-occurring salts in the soil by watering deeply enough to leach these water soluble chemicals down and out of the root zone.

If you want to be the first to bring in a tomato, you probably are way behind in the race. If all you want is just a great tasting tomato, why not give it a try this year?

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When experimenting with new varieties, it is often helpful to plant them next to your old favorites for easy comparison. I recommend that you keep a diary from year to year so that you will be able to remember how each variety performed.

If you are gardening by the square foot or in containers, select dwarf plants if possible. They will allow you to plant more in a smaller space. No matter what your garden size, throw in a few colorful flowers. They will add color and pizzazz to your garden. Seed catalogues can be a great help in finding new varieties.

Fourth, add organic matter regularly. Organic matter helps loosen our tight desert soils. Not only does it make the soil easier to work, but it also improves soil water-holding capacity, drainage and aeration. Manure, compost, peat moss and leaf mulch are common materials for this purpose. Composted manure is easy to use and is relatively free of weed seeds.

Apply a layer of organic matter two to three inches thick on the garden area about one to two months before planting, if possible. Work it into the top ten to twelve inches of soil. A thorough irrigation at this time helps leach harmful salts from the root zone.

Fifth, ensure the fertility of your soil. A fertilizer containing both nitrogen and phosphorus, when applied before planting, will benefit most garden crops. Although soils vary in fertility, a typical fertilizer application would consist of one to two pounds of 16-20-0 ammonium phosphate fertilizer on a ten by ten square foot area. Organic growers may choose to use blood meal or animal manures. If poultry manures are used, apply them at half the rate of other manures.

Be sure to spread all applications of fertilizer evenly across the entire garden area. Also, three to five pounds of sulfur per one hundred square feet of garden will combat the natural alkalinity of the soil. These materials should be tilled or spaded into the top six to eight inches of soil shortly before planting.

Sixth, plan for correct irrigation. Irrigation is necessary for all garden crops in Arizona because of limited and uncertain rainfall. A good irrigation plan will add sufficient water to keep the soil moist, but not saturated. The entire root zone of the plant must be irrigated each and every time that water is applied through the growing season to leach out salts and provide for plant needs. Because excessive fluctuations of soil moisture adversely

affect plant growth and quality, regular applications of water need to be made to prevent the soil from becoming too dry.

Seventh, plant at the right time. Early March is an ideal time to plant because we can still mature short season winter varieties and get a fast start on spring and early summer types. Beans, beets, carrots, eggplant, peppers, radishes, spinach, and sweet corn can all be planted up to March 15. Cucumbers, melons, squash and tomatoes can be planted through March. Generally, the earlier this latter group can be started, the more chance they have of putting out a crop before they are attacked by the heat and diseases of summer.

Eighth, watch for weeds. The soil abounds with the seeds of many plants. These seeds have accumulated over the years, the results of previous generations of weedy plants. They lay dormant in the soil waiting for just the right conditions for germination and growth. A vegetable or flower garden usually provides those conditions. Weeds must be removed to prevent the theft of valuable light, water and nutrients. Even small weeds can slow down the progress of new seedling vegetables, so pull them early.

Ninth, protect from pests. Early spring gardens are often attacked by aphids, mealy bugs and other insects. These populations can explode quickly so vigilance is key. Early infestations of these insects, before their numbers get out of hand, can usually be controlled by spraying them with a strong stream of water from the hose. Beneficial insects, like lady beetles, lace wing larvae, and big-eyed bugs see these insects as food and help keep these kinds of pest problems under control.

Tenth, harvest and enjoy the vegetables in a timely way. Many vegetables produce better if they are regularly harvested. Early removal of tomatoes, squash and melons keeps the plants in a production mode. An overload of ripe fruit tells the plant that it is time to shut down and lay off fruiting. Leafy vegetables, like leaf lettuce, will produce new foliage when the original leaves are harvested. In this way even small garden plots will be highly productive.

With a little planning, some tender care and considerable good, old-fashioned work, a gardener can soon be enjoying the fruits of all labors.

If you would like a copy of the leaflet, "Ten Steps to A Successful Vegetable Garden", please call (520) 836-5221 ext. 204.

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a place where bicycle, car and truck traffic will either hit, or swerve around the branches. In either case, the tree becomes a safety hazard that will need to be severely pruned or removed.

Sign number three: the tree limbs and branches grow over the fence into the neighbor's yard. If the neighbor doesn't mind the tree or the shade that the tree provides, this may not be a problem. More frequently than not, however, the people next door would prefer that a tree not invade their space. The hassles, problems and potential conflicts that could occur are easily avoided by planting the tree in a location where it will not cross property boundaries.

Sign number four: the tree branches rub on the exterior walls or the roof of the house. Branches blowing to and fro in the wind can scrape and damage brick, paneled or stucco walls. They can also rip asphalt shingles or break tiles on the roof. Plant the tree away from the home to avoid expensive repairs.

Sign number five: the trees grow into each other. Trees planted too close together compete for water, air, nutrients and sunlight. A lack of proper nutrition or sunlight will often stunt plants and weaken their trunks and branches. Branches that cross and rub against each other can easily be damaged and ruined.

Sign number six: the tree is damaging water, sewer or natural gas lines. Some trees have aggressive, fast-growing roots that can overpower and damage underground utility lines. Sewer pipes are particularly vulnerable, for example, to the invasion of mulberry tree roots. Depending upon the type of line, the damage can range from a mere frustration to one of real danger. It is important to know where the lines are on the property, and avoid them.

Sign number seven: the trees shade out lawns and flower beds and make them unproductive. Dense shade from large trees will often prevent lawn grasses, bedding plants, shrubs, vines and other trees from properly growing as they shade out their smaller competitors.

Sign number eight: the tree is in a place where it can heave and buckle sidewalks and fences. The roots of large trees, if they grow too close to the surface of the soil, can push up sidewalks and fences. This type of structural damage can be difficult, as well as expensive, to repair.

Sign number nine: a caliche layer or structural hard spot in the soil causes the roots of trees to grow up close to the surface of the soil. Shallow, improperly rooted trees can more easily blow over in a windstorm. This problem can be avoided by checking the percolation of water through the soil prior to planting and by properly preparing the planting hole.

Sign number ten: the tree cannot be properly irrigated in a timely manner because water on the property is unavailable or is too expensive for the budget of the person paying the water bill. Trees will become seriously damaged, or even die, if they do not receive the proper amount of water during the growing season.

Planting a tree in the wrong location is one of the more obvious and expensive mistakes that is all too commonly made during landscape planning and installation. By taking the time to plan and install trees properly, major landscape mistakes can be avoided. This will result in savings of both time and money.

If you have questions, you can reach one of the Master Gardeners at the Cooperative Extension office, 820 E. Cottonwood Lane, Building C, in Casa Grande. The telephone is (520) 836-5221. The author's email address is gibsonrd@ag.arizona.edu.

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