Queen palms are commonly found in yards and landscapes throughout the low elevations of Arizona but desert conditions can make it difficult to keep them healthy and looking their best. Let’s take a minute and talk about the tree and its care.

The queen palm, *Syagrus romanzoffianum*, can be a beautiful tree. Because of its similarity to the tropical palms of coastal areas, it reminds us of beaches, surf and sand. Native to Brazil, it leads our fancy to far away places and vacation memories. A graceful, delicate tree, the queen palm fills many roles in the landscape. In theory, it should be perfect for our area.

In reality, the queen palm is often planted in places that are not conducive for growth and development. Sometimes they are neglected or given improper care.; Because of this, they sometimes struggle. For example, a queen palm is often placed in locations where it can be whipped by winds. Needing lots of sunshine to do well, it is sometimes planted in locations where shade predominates. The system providing water may not be adequately leaching salts. We may forget to proper fertilize and nourish the tree. Each of these conditions, individually or collectively, can create significant health challenges for the queen palm.

First, let’s talk about freeze damage. The queen palm is listed as moderately cold hardy, but it can be damaged by temperatures plunging into the mid-20’s F, temperatures that are quite characteristic of our area. Fortunately, the tree rarely dies from our winter temperatures, but the leaves turn often brown and look scraggy until they are slowly replaced by newer, uninjured leaves. As the new fronds appear, it is okay to trim out the older damaged leaves, giving the plant a fresher look. Cold injury, and its slow recovery, is one of the main reasons that people become disenchanted with the tree.

Another common problem stems from shading. The queen palm likes full sun, and it will even tolerate reflected heat, such as what it might receive on a south-facing wall. It will grow in moderately shaded areas when it is young, but it rarely looks its best there. Stunting, and other slow growth symptoms are common in trees growing in shade. Southern exposures usually work best.

Unfortunately, southern exposures generally expose the tree to the high winds and sand blasting of monsoon storms. In the queen palm, the leaves or fronds can be easily damaged by high winds. It is best to plant them in places where the prevailing monsoon winds out of the southwest cannot whip them around and damage the

### Protecting Queen Palms in the Landscape

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leaves. That means that the tree should be planted on the lee side, the down wind side, of a building or next to thick trees that can serve as a wind break. That choice, of course, puts a tree on the north side of a building or under trees. Remember the shading issue? With the queen palm, we just have to pick our poison and deal with the aftermath.

Queen palms are also susceptible to salt injury to the leaves. Tip burn is a common symptom and results from the accumulation of salt in leaf tissues left behind when water evaporates and drifts out of the leaves through the process of transpiration. The higher the salt content of the soil, the quicker the symptoms occur. To prevent salt damage, queen palm trees must be watered correctly.

Deep watering on a regular basis across the entire root zone is vital to the good growth and good health of all species of palms. In general, trees growing in sandy soils need irrigation more frequently than those planted in fine-textured silt or clay soils.

The queen palm should be irrigated every week or two when it is young. It is important to thoroughly wet the entire soil profile. Established palms do well with six to eight inches of water every two to three weeks during the warm growing season months and the same amount every four to six weeks in winter. Apply the water slowly over three to five hours to insure deep penetration.

Queen palms need regular feeding with a nitrogen fertilizer or it will begin to show signs of yellowing in the leaves. Fertilizing established palms is a critical task in the correct management of these trees. Organic fertilizers such as blood meal and composted manure give good results. The size, age and general health of a palm will determine the amount of material to be used. Composted manure can be maintained as a two or three-inch mulch inside the irrigation basin. Apply blood meal to a large established palm at the rate of fifteen to twenty-five pounds per tree.

Inorganic fertilizers such as ammonium sulfate (21-0-0) or ammonium phosphate (16-20-0) are equally effective for feeding palms. Use three or four pounds of ammonium sulfate each year for each large established palm with an irrigation basin approximately ten feet in diameter. Split the total amount into two or three applications during the growing season. Deep water the tree to move the nutrients into the root area.

The queen palm needs good drainage in its root zone. Pooling or standing water leads to yellowing leaf tissues and can stunt, or even kill, the tree. A soil that is not compacted and is free of caliche is ideal for the queen palm. If you have a soil with high concentrations of caliche, calcium carbonate, or does not drain well, you can expect problems.

In some areas, spider mites can cause problems in queen palms. Spider mites are tiny, almost invisible creatures. I usually test for spider mites by dusting a leaf or leaf part into my hand and watch for the dust particles to start to move. Webbing in protected areas of the leaves is also a dead giveaway that spider mites are present. If you see spider mites, wash the plant off regularly with a strong stream of water to dislodge the animals and remove their protective webbing.

The queen palm is indeed a popular landscape tree in the warm areas of Pinal County. Even though it can easily be damaged from the effects of a number of factors, good care and common sense will go far in helping overcome the challenges.
With the warming temperatures, many fruit tree varieties will soon be blossoming out, if they haven’t already.

Blossoms on fruit trees usually mean a tasty harvest of apricots, plums or citrus at the end of the season. Sometimes, however, a tree loaded with flowers in the spring finishes the season with few or even zero fruit hanging from its limbs. For tree owners craving a harvest of fresh fruit, this can be extremely frustrating.

The return of warmer weather is pushing some early deciduous fruit varieties into putting out flowers. The citrus trees will not be far behind. If conditions are right, many of those blossoms will set fruit and provide a good harvest at the end of the season. Unfortunately, there are times when some trees shed every one of their blossoms and provide no fruit in that year. The reasons for flower loss are complex and often confusing, but here are some tips that might help in the fight to avoid no-harvest seasons.

Frost is one of the more common reasons for fruit tree blossom loss, and good harvests often mean that the fruit grower has to be vigilant and timely with protection early in the season when cold temperatures are possible.

Fully opened blossoms on apricots, peaches, plums nectarines, pears, apples and citrus fruits will withstand some cold temperatures for a short period of time, but if air temperatures drop for several hours much below 32° F., flowers on fruiting trees will often be injured. Injured flowers usually means no fruit that year. Frost can also damage young fruit; cold-injured fruit will usually turn brown or black shortly after being injured by freezing temperatures and eventually drop from the tree.

Shortages of water and nutrients can also cause blossom drop. Blossom production places a heavy stress on the tree as it uses energy and nutrients to properly carry out its reproductive cycle. If there is a shortage of water and nutrients from the roots and sugars from photosynthesis within the plant tissues at the time that flowering occurs, many of the flowers may not be retained by the tree, resulting in many flowers but few, or even no fruit. Because of this, the timing of water and fertilizer applications is critical to fruit tree success.

The first nitrogen fertilizer application should occur between 4 to 6 weeks ahead of the bloom period to invigorate the tree before flowering. Applying fertilizers at the time of flowering will help the tree later in the growing season, but the nutrients will arrive on location within the plant tissues at the time that flowering occurs, many of the flowers may not be retained by the tree, resulting in many flowers but few, or even no fruit. The tree often responds to this problem by thinning itself. Other nitrogen applications should occur at mid-season to finish fruit development and in August to support the development of fruiting buds for next year.

A shortage of water, or even excessive water, can have a detrimental effect on flowers. It is important to maintain a good watering pattern during bloom, and for the period just after, to ensure that the tree is not stressed during the fruit setting and maturation process.

The best way to determine just how often a tree should be watered is to dig down about 6 inches into the soil with a shovel or hand trowel and look at the soil. Take a handful of soil from the bottom of the hole and squeeze it in your hand. If the soil feels cool and moist and if the ball of soil in your hand maintains its cohesiveness and shape, the soil probably contains sufficient moisture to carry the tree for a few more days. However, if the soil feels only slightly moist and the ball appears to be at the initial stages of collapse, it is time to water. Never let the soil at the 6-inch level become completely dry.

Whether applying water to a tree from a drip system or from a hose into a well around the tree, it is important to deep water regularly to ensure that the entire root system is wetted and to flush out any salts that might be building up in the soil. When flood irrigating, turn the hose on to a slow trickle and let the water build up in the well slowly over time. The extended irrigation time will allow more water to enter the soil profile and move deeper into the soil. Deep irrigations store water throughout the root system and move harmful salts down and out of the rooting area.
For drip irrigation systems, ensure that there are sufficient emitters present to wet the entire area underneath the canopy of the tree. It is also important to make sure that the duration of irrigation is long enough to allow the water to move deeply into the soil. By filling the soil profile, the number of irrigations in a week can be drastically cut back. This procedure will reduce stress on the tree and, in the long run, save water.

Another factor to consider when trees lose flowers is the age of the tree. Juvenile trees, trees that have been planted within the last 3 to 4 years, typically do not set fruit until they reach maturity. Most deciduous fruit trees, such as apricot, peach, and apple, may take several years to reach their full reproductive stride. Citrus trees may take up to 7 to 8 years before they are at full production. Pecan trees may take even longer.

It is often frustrating for new tree owners to purchase a tree in the nursery which has one or more fruit on the tree and then find that the tree does not produce any fruit at all during the following years. The reason for this lies the size of the root system. When fruit trees are in pots, buckets, and boxes, the relatively small space within the containers limits the number of roots that the tree can produce. Plant maturity is determined when the tree develops a balance of energy between the leaves of the plant and its roots after it reaches full genetic size. In the container, the tree, even though still small, reaches a balance of energy when it has been in place for a period of time. The young tree, thinking it is mature, begins to use energy to set fruit. When the tree is removed from the container and put into the soil, there is then sufficient space for the plant to begin putting out new roots, which causes the above-ground portions of the tree to also resume growth until it reaches its full potential size. The beginning of plant growth reverts the tree into a juvenile growth phase. During this time very little fruit will be produced, and that only sporadically, until the tree reaches maturity.

It is also important to remember that most fruit trees normally produce an overabundance of blooms. Citrus trees are a classic example of this behavior. It is not unusual to observe a citrus tree with a white cast of blooms over the entire tree. This is true even for young, juvenile trees. Of all those flowers, it is normal for citrus trees to keep only 2%; the other 98% will fall off. In this case, a 2% fruit set is considered to be a heavy crop and the flower drop is not only normal, but desirable.

The peach tree, however, is notorious for setting far too many fruit for its own good. For that reason, annual pruning is important to help the tree minimize the stress of a fruit overload. Up to 80% of the peach tree’s previous year’s growth should be removed to prevent the oversetting of fruit and the need for hand thinning later on in the growing season.

Finally, there is the issue of proper pollination. Pollination is the transfer of genetic material from the male parts of the flower to the female parts. Flower fertilization occurs when the pollen and the female egg combine to make an embryo within the developing fruit.

There are many conditions that can prevent pollination and fertilization, including lack of insects to carry the pollen from the male parts of the flower to the female parts, or in the case of dates, melons, squash and pecans, from the male flowers to the female flowers. Sometimes heat or cold will kill pollen before fertilization can take place. Sometimes the pollen is sterile or incompatible with the female parts of the tree. Most fruit tree pollination problems can be solved by choosing the proper tree varieties for our area.

Every year many peach, apricot, plum, apple, and citrus tree owners are frustrated because their trees load up with flowers in the spring with the promise of a great yield at the end of the season, only to find that their trees actually produce only one, two, or even no fruit that year. By following good management practices and having patience with young trees until they reach a mature bearing age, much of the frustration of seeing fruit trees without fruit can be avoided.
Mid February is an excellent time to transplant tomato seedlings for an early summer harvest.

Tomatoes are not an easy crop to grow in the desert. Soil problems, watering requirements, and plant nutrition can be serious constraints to good production, but, as the many gardeners who successfully harvest excellent crops each year have proven, it is possible.

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 garden soil 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.

Tomatoes set fruit only when night temperatures are above 55°s F and when day time temperatures do not exceed 90°s 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. Celebrity is a popular variety and has proven consistent from year to year. 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 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.

Good soil fertility is essential. 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.

It will be highly important to also manage the concentration of naturally-occurring salts in the soil by watering deep enough to leach these water soluble chemicals down and out of the root zone. Tomatoes are quite sensitive to high salt levels in the water and soil.

Good tomatoes grown fresh on the vine are possible in the desert as long as we understand the basics of good plant care.
If you have a favorite grapevine or blackberry, and wish you had a few more, early February is an ideal time to make new plants from cuttings.

Many types of plants, both woody and soft, are frequently propagated by cuttings. A cutting is any part of a plant that is sliced from its parent with the intention of growing a completely new plant. Cuttings can come from plant stems, roots, or leaves. Stem cuttings are of three types: softwood, semi-hardwood, and hardwood; depending upon the maturity of the wood at cutting.

Softwood cuttings are taken in the spring through late summer from actively growing wood near the growing tips of branches. They are some of the easiest and quickest-rooting of the stem cuttings. The wood should be actively growing, soft, succulent, and flexible new growth. Plants that are well adapted to softwood cutting are coleus, Euonymous, chrysanthemums, rosemary, ivy, philodendron, and pothos. Try this type of propagation when the weather warms up later in the spring.

Semi-hardwood cuttings are taken after the active growing season or after a growth flush, usually in summer or early fall. Pyracantha, monks pepper, viburnum, and lantana propagate well from semi-hardwood cuttings. Again, this may not be the best time of the year to collect and attempt to propagate semi-hardwood cuttings, especially for the first try.

Hardwood cuttings come from mature, dormant wood produced during the previous year’s growing season. Generally, wood with a stem diameter of one-fourth to one-half inches is best. Hardwood material will be located some distance back of the terminal ends of the branches. Hardwood cuttings usually take longer than softwood cuttings to root and start growth, so it is important to place the hardwood cuttings where they can remain undisturbed. Try using hardwood cuttings on roses, grapes, pomegranate, oleander, and fig. Now is a good time to get out the clippers, make a few snips, and propagate your grapevines.

Potting medium is important in getting cuttings to root. Indoors, a clay or plastic pot, six to eight inches in diameter with drainage openings in the bottom, is an ideal size. Outdoors, flat plastic trays with bottom drainage works well. The media used in the containers should be porous and sterile. Horticultural vermiculite or concrete sand are idea for this purpose. If sand is used, run tap water through it to flush salts and excess silt. After washing, let it air dry for several days in direct sunlight to reduce the incidence of disease.

It is important to keep cuttings at a uniform temperature. Indoors or out, containers of new cuttings should be placed in an area where they will receive morning sun, and bright, indirect light the remainder of the day. Covering the containers with clear plastic will help keep humidity and temperature constant; but, make sure that the plastic does not touch the tender plants or seal off the container. Good air exchange around the plants is critical. If it does not occur, the lack of fresh air may prevent the new cuttings from growing.

Stem cuttings should be taken from healthy, vigorous plants for best rooting results and should be removed with a sharp blade to avoid or reduce injury to the parent plant. The cutting tool should be dipped between each cut in rubbing alcohol or a mixture of one part bleach to nine parts water to prevent transmitting diseases from infected plant parts to healthy ones. All flowers and flower buds should be removed from the cuttings to allow energy in the new plant to be used for root and shoot formation rather than for fruit and seed production.

With all cuttings, it is best to remove all of the leaves from the branches, except for one or two near the growing tips. It is absolutely necessary that the new cuttings be correctly oriented in the container. This means that the portion of the stem that was closest to the roots should be placed in the potting medium and the part that was closest to the tip of the branch should be the part that points up into the air. Upside down cuttings will not grow.

An easy way to remember which end is which, especially for semi-hardwood and hardwood cuttings, is to cut the bottom end that will go into the soil straight across, while the end which will go into the air, can be cut at an angle. Using this technique will minimize the chance of error.
Before making any cuttings, fill the container with the vermiculite or sand and water it thoroughly. Prepare the cuttings and use a blunt knife to make openings in the rooting media. These prepared openings will prevent any possibility of breaking the cuttings when inserting them into the media. Stem cuttings root best when they have been dipped in a rooting hormone powder before inserting into the medium. Stem cuttings should be placed at least two inches into the soil mix.

The cuttings should be watered once or twice each day after they have been placed in the rooting medium. Sufficient water should be applied to allow a small amount to drain out at each irrigation. This will help remove harmful salts and make sure that all roots are properly moistened.

Each type of plant requires a specific time period to initiate roots; some will form roots in three weeks and others will take longer. After a period of four or five weeks, gently remove a cutting from the container and examine it for new roots. If the cutting has four or five roots, it can be removed and planted in a container with a good soil mix. If roots are not present, place the cutting back into the original pot.

After new landscape plants have developed an adequate root system, they should be moved outdoors while still in their containers into a location without drafts or other drastic changes in climate. They will do best if there is morning sun and afternoon shade similar to what they have experienced indoors or in the greenhouse. This process is called "hardening off" and allows the plant to adjust to the normal outdoor growing environment. They will need to be left for a time in this new location. Don’t forget to water them regularly.

It is not uncommon for newly rooted plants in the hardening off phase to wilt or show other signs of stress. After all signs of wilting have disappeared, the new plants can be exposed to more sun if they are of the type which can tolerate full sun. Once they become adjusted to the outdoors, they are ready to plant in their permanent location. House plants do not need to receive this conditioning.

Growing new plants from parts or pieces of older plants can be a fun hobby and a great way to increase your collection of indoor and outdoor plants.

If you have questions about this newsletter, have any plant related problems, or wish to have a publication sent to you, please call (520) 836-5221 x204 or (5820) 374-6263 and leave a message. If you have a plant problem and are able to email a picture, please send a picture with any information you can provide about the plant, and your contact information to our diagnostic team at macmastergardener@gmail.com and a Master Gardener will contact you.

This newsletter is available to view on our website at: http://extension.arizona.edu/pinal

Richard D. Gibson
Extension Agent, Agriculture

RDG/te/sh/aw

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Spring Plant Sale
March 4, 2017
8:00 am – Noon

Variety of plants include:
Tomatoes, Peppers, Lettuce, Melons, Eggplant, Squash, Herbs,
Tomatillos, Shrubs, Trees, and More

We are unable to process credit cards. Cash or check only.

Location: Maricopa Agricultural Center
37860 West Smith-Enke Road
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(Drive East from the corner of Smith-Enke and White & Parker and
follow the signs)

For event information, please contact:
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