



AND LIFE SCIENCES COOPERATIVE EXTENSION Pinal County

COLLEGE OF AGRICULTURE

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GROWING PLANTS INDOORS

We enjoy the presence of plants in our indoor living areas but for many of us it is a challenge to keep them alive.

Our home and work spaces really do seem more fresh and vibrant when containerized plants are used to brighten our every day experiences. As I write, I am remembering a recent question from an apartment owner in New York City wondering about how best to keep a favorite container plant, a saguaro cactus, alive and prospering in the Big Apple. One of the exciting opportunities of growing house plants is that a wide variety of plants from many different parts of the world can be enjoyed just about anywhere there is enough space, light, and water.

The challenges we face when we try to grow a plant indoors, however are real. Plants that are accustomed to growing in bright sunlight may not do well in that shady nook inside your home. Rain forest plants needing growing conditions that are almost impossible to provide in the desert, may soon dry up and die. Finicky plants that require a specific range of temperatures may not do well in an office unless there is a spot that closely mimics that of its native home. In order to grow indoor plants successfully, it is important to know the plant, be familiar with its needs, and provide those conditions so critical and essential to its survival.

No matter whether you are an experienced indoor gardener, or just starting out, a review of the basic rules of growing container plants might be in order. Here are a few tips to keep in mind as you work your green thumb magic.

The simplest and easiest way to give an indoor plant its best chance for survival is to select those plants that are best able to match the indoor conditions of a specific location within the home or office. We just have to face it: a high humidity-loving Boston fern is probably not going to do well for very long in a low humidity environment, especially if it is hung in front of a air conditioning and heating vent. The air coming out of the vent, no matter what the time of year, will most likely be too dry to suit the plant. Unless you have a place of humidity inside the home, it might be better to stay with those plants who prefer conditions that mimic those found in the indoor living space. The rule to remember is this: select the right plant for the location where the plant will ultimately end up.

Indeed, good management and care starts with the selection process. The first step is to evaluate carefully the conditions in the spot where a plant will be placed. If the new home for the plant is in a high light, south-facing window it will be important to select a plant that requires lots of light. On the other hand, a plant used to growing down on the jungle floor with lots of dense foliage overhead may do best in an east-facing window or maybe even one with a northern exposure.

Before purchasing a new plant, it will be important to inspect the plant carefully for diseases and insects. There just is no guarantee that the plant to which you are attracted is pest-free. Check the plant carefully for any signs of yellow or drying leaves, insect eggs, mite webbing, or other signs of infestation. You have to be vigilant because the signs of a potential problem may be

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located in just one small area. Avoid bringing home any plants that show indications of potential problems. Unless you are like me and enjoy experimenting, you really do not want the hassle of trying to solve a difficult disease or pest problem. Even if you think the plant is exceptionally healthy, it is a good idea to isolate it from your other plants for a time until you know that the new member of your collections is okay. The last thing you need is a bunch of scale insects making themselves to home, not only on the new plant, but also on your existing plants.

Once you have selected a plant and paid the bill, don't forget about growing conditions needed by the plant, even it is simply on the way home. Many references recommend a growing condition of between 50 to 85 F. I know that you can already tell where we are headed with this. If I take the plant from a nice warm store out into cold, frosty conditions and leave it for a time in a car where the temperatures can dip below the preferred range, I run the risk of cold damage to what generally are tropical plants. Likewise, leaving an indoor plant in a hot car during the summer is asking for trouble. When purchasing or moving plants at times of the year when temperatures are extreme, it is wise to protect the plant appropriately. When transporting them, do not put them in the trunk! Place them inside the air conditioned or heated interior with you.

It will also be a good idea to let the plants become acclimatized to their new location. It will be almost a given that your new plant will have to become accustomed to a set of conditions greatly different from the nursery where it was grown. For example, consider the difference between sun leaves and shade leaves.

Some plant leaves will have a different internal structure depending upon whether the leaf is primarily in the sun or in the shade. Sun leaves, those that develop in full sun, will have the tender chloroplasts so important to photosynthesis located deep within the leaf tissue where they are more protected. Shade leaves, those that develop under shady conditions, have the chloroplants positioned near the surface of the leaves where they can be more efficient in using the reduced levels of sunlight. If the plant is used to either high light or low light conditions and is placed in a situation different from which it is accustomed, well, you can see where problems could arise. Indeed, a plant used to sunny conditions will often lose the sun leaves to regrow shade leaves when moved to a low light situation. The reverse is true for plant leaves used to shade that are placed in a sunny location. These rapid swings in conditions can shock the plant and ultimately lead to an overall net loss of energy and severe damage. If the damage is heavy enough, it can lead to plant death. It is best then to move the plant gradually from one extreme light, temperature, or humidity condition to another in order to prevent severe damage to plants.

Another major threat to indoor plants is salt accumulation. Salts are dissolved in most of our native water sources and, if not adequately managed, build up in the root zones of container plants. These accumulations can cause serious problems, including leaf discoloration and loss. The use of containers and potting soils that drain easily is an important first step. It is then critical to add sufficient water each time the plant is irrigated to leach out the salts and prevent accumulations within the container. Don't forget to remove the drainage water from the catch basin under the plant or, as the potting soil dries between irrigations, the salty drainage water could be sucked right back up into the container and damage the tender roots of the plant.

It goes without saying, of course, that plants should be watered regularly and given an appropriate fertilizer application as needed. Indoor plant fertilizers usually will contain nitrogen, phosphorus, and potassium, the three numbers on the fertilizer container. Sometimes there will also be trace elements included. Watering schedules will be dependent upon the plant selected so make sure that you know what the plant needs and then stick to the schedule. The same goes for the feeding schedule.

House plants can bring beauty and ambiance indoors in often spectacular ways, but long term health and success will be dependent upon the care that we give them once they have come home to share our indoor living areas.

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PRUNING TIPS FOR GARDEN AND LANDSCAPE TREES AND SHRUBS

As we start the new year, and enter into the pruning season, it may be a good idea to pull together into one source a summary of the more important pruning recommendations for each of the different types of trees and shrubs.

Proper pruning is an important step in keeping trees and shrubs healthy and looking their best. Some fruit trees need to be pruned annually to maintain good production and form. Sometimes landscape trees need to have major branches removed. With the recent trends to warm weather, both early and late, January is now considered the best time to do heavy pruning, with the exception of the summer dormant trees like mesquite and Palo Verde. Heavy pruning in the summer dormant plants is best done in July. Pruning must be concluded before new growth resumes after the dormant season.

Pruning is the removal of selected limbs and branches to benefit, not harm plants. Properly done, it is a normal and proper management tool. However, there are definite rules that need to be followed or unnecessary damage may result.

Bearing fruit trees that lose their leaves each year during the winter, like peach, plum and apricot, must be pruned annually to keep them in peak production. Citrus varieties on the other hand need very little pruning to keep them in good condition. Shade trees often require the removal of structurally weak or damaged branches for safety and appearance. Shrubs and vines need trimming to keep them looking good.

All pruning cuts should be made at a 45° angle and should be clean and smooth without a ragged surface. The branch, no matter what its size, should be removed at the point where it emerges from its supporting branch or limb. Do not leave stubs upon which a hat could be hung as these will most often die. Dead wood often provides an entrance through which diseases and insects can enter.

Always remember to use the correct tool for the job. Do not try to cut branches with hand shears or loppers that are too big for the tool. It will often result in damage to the tool, the plant and to the person performing the operation.

Trees have the natural ability to heal themselves quickly if branches are properly removed. There is an area of swelling at the base of branches called the collar which contains large amounts of cells that can actively divide and quickly grow to cover the wound in one or two seasons. This collar is extremely important to the plant and neither should be cut off during the pruning process nor left powerless to cover an open wound because the branch was not cut off flush with the collar. Research has shown that pruning cuts left unsealed with paint or pruning sealer heal faster in our dry, desert climate than when the cuts are sealed. Leaving fresh cuts open to the air is the best policy.

Because trees and shrubs require different pruning procedures, here are suggestions for specific types of plants.

DECIDUOUS FRUIT TREES. There are two main systems for pruning fruit trees. The open center system is commonly used for peach, plum and sometimes apricot trees. The modified central leader system works best for apples and pears. Both systems help keep the plant short so that cultural and harvest practices can be more easily carried out.

The modified central leader system requires the removal of the main stalk or stem during the first year of growth. The following year will result in the growth of several side branches from which three or four evenly spaced branches can be selected for fruit production. As the tree grows, a new grouping of lateral branches can be selected every 30 to 36 inches along the central leader. New side branches can be encouraged by cutting back the central leader just above the point where new branches are desired. Once the form is established, it is simply a matter each year of keeping the tree thinned of small branches in undesirable locations. Apples, pears, and apricots are commonly pruned to this method.

Apple and pear fruit are mostly borne on spurs supported by wood that is two years old or more. Pruning should maintain as many of these spurs as possible. All cuts should be made to divert growth towards the outside growing points. With the pear's upright growth habit, this is a relatively simple procedure. Thinning new growth forces the tree to produce new fruiting spurs.

The apricot produces most of its fruit on short-lived spurs. The goal is to remove branches with old spurs and keep the trees producing good replacement wood. This procedure weeds out unproductive wood and allows light to penetrate to the center of the tree. This in return forces new spur production.

The open center method results in a vase or bowl shaped appearance to the tree. It allows sunlight to more easily penetrate the interior portion of the tree and encourages the development of strong branches that will support a large crop of fruit. Nectarines, peaches, plums, and sometimes apricots are pruned to this method.

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Peach and nectarine fruit are borne on the previous year's growth and new fruiting wood must be produced each year. Heavy annual pruning is the rule for these trees. Remove at least ½ of last year's growth by cutting back the growth to an outside bud. Recent growth will be found at the tips of branches, have a different color, and will be above the previous year's terminal bud scar. Make sure that the limbs which are retained are forced outward. If numerous laterals are produced from pruning, thin to one or two branches. While the center of the tree should remain open, it is not advisable to strip the center of all bearing wood. If all the wood is removed, there will be nothing to protect the tree from sunburn later on.

Plum fruit are borne on spurs two years old or older. Spurs should not be removed except when potential fruit thinning is desired. Thin out about 1/3 of the previous season's growth by cutting undesirable branches back to their point of origin.

CITRUS. Citrus do not need pruning to maintain fruit production like apples, peaches and plums. The fruit are mainly borne at the tips of the tender branches and removal of these tips will result in reduced fruit production the following year. However, dead branches that have been shaded out in the interior of the tree can be removed at any time.

Some desire to shape citrus to a certain form and are not overly concerned with fruit production. When shaping citrus for ornamental purposes, do not cut so deeply that sunlight will be able to penetrate the canopy and strike the bark of the trunk and limbs. The wood is extremely sensitive to sunburn and could result in serious damage to the plant. Again, shaping will reduce fruit production.

GRAPES. For peak production, each variety should be pruned to the system that best suits its growth style. Since grapes produce fruit on wood that grew last year, wood produced in earlier years should be completely removed and new wood should be selected for this year's production. Thompson Seedless, the green seedless grape so common in our area, should be cane pruned. Flame Seedless and Perlite should be spur pruned.

Cane pruning requires the removal of everything but 2 to 4 canes of new wood. These should be medium sized canes from last years growth and each cane should be cut back to 8 to 12 nodes depending upon the strength of the vine. The leaves and fruit will be produced from this wood. For each fruiting cane that is left, there should also be a spur. This is accomplished by selecting another cane in the same region as the fruiting cane that is cut back to 2 nodes. New growth from this spur will provide the fruiting canes for the following year.

Spur pruning is much easier and takes less time than cane pruning. Vines are trained into 2 cordons, permanent arms that spread in opposite directions from the trunk. New wood grows from nodes along the cordon. These canes are cut back to 2 node spurs. Each fruiting position along the cordon can usually support 2 spurs. The leaves and fruit for this year will come from growth emerging from the spurs.

LANDSCAPE TREES. Large landscape trees need not be heavily pruned. Stubbing back is never recommended as it is very hard on the trees and could shorten their life. Shade tree pruning usually requires the removal of branches that are rubbing against each other, that are growing straight up through the tree canopy or that are obviously damaged or diseased. Sometimes tree branches begin rubbing existing structures like walls and roofs of houses. These can be removed, but care should be made to cut them back to the limb from which they emerge. Do not leave stubs.

HEDGES AND SHRUBS. Specimen shrubs and hedges usually are trimmed throughout the growing season, but occasionally they must be cut back heavily to restore them to proper size or to renew growth. This heavy pruning should be timed to coincide with the emergence of new growth.

A hedge severely cut back in January will remain ugly until growth begins in the spring. Delaying pruning until just before growth begins will shorten the time that the shrubs are barren of leaves. However, do not wait until growth begins as this will result in a delay while the newly exposed buds are stimulated to begin growth. This type of pruning should be done in late January or early February.

Finally, if you are not sure whether the procedure that you are about to perform is correct, get advice. If you have questions, you can reach Cooperative Extension at 820 E. Cottonwood Lane in Casa Grande at (520) 836-5221, extension 204.

Figs

Is there room in your yard for a fig tree?

This versatile fruit tree with its handsome, dark green foliage and its delicious, edible fruit is a popular tree that does exceptionally well in Southern Arizona. The sweet, tasty fruit can be eaten fresh off the tree or it used in preserves. While some do not like either the taste or gritty texture, many people love both the taste and the health benefits of fresh fruit straight off the tree. When we consider these benefits, it makes sense to include a fig tree in the home orchard.

Variety selection is important because each variety offers important benefits. Let's consider the characteristics of four common varieties planted in our area: "Kadota," "Canadria," "Black Mission," and the "Brown Turkey."

The Kadota is a strong growing tree that produces a tough-skinned, greenish yellow fruit. The Canadria yields a thinskinned white fig that blushes violet at maturity. The inner flesh is colored white and strawberry. Many people remark about its fine flavor. The Black Mission fruit is deep purple, almost black, with good flavor. The Brown Turkey produces brownish purple fruit with good flavor. While it does well in the low desert, it seems to do best at elevations around 2,000 feet.

Although generally a low-maintenance plant, the fig does, however, have its problems. Fruit drop may result from insufficient irrigation or loss of tree vigor. Figs that develop at the tips of branches late in the season are often dry or they drop because of cool weather.

Plant-feeding nematodes, microscopic roundworms, can attack the roots and weaken tree growth. Premature leaf shed and poor fruit development are typical symptoms of nematode damage, and small swollen knots on feeder roots confirm the presence of the more common root knot nematode. Figs can be quite devastated by their attack; however, nematode problems are generally confined to trees growing in sandy soils.

Like many other plants, figs are highly susceptible to Texas Root Rot. Gardeners should probably avoid planting figs into known root rot areas.

Nearly ripe figs may split open because of either adverse weather conditions, such as sunburned fruit or dry weather, or following the irrigation of soil that was allowed to dry between irrigations. Split figs rapidly spoil and attract unwanted insects.

Figs can also sour from bacteria and yeasts tracked into the interior of the fruit by sour fruit beetles through the "eye" or blossom-end opening of the fruit. These problems vary in intensity from year to year depending upon temperature, humidity, and insect populations. Figs with very small eyes, such as the Mission or Canadria varieties, tend to exclude more insects than varieties with large eyes, such as the Brown Turkey. The incidence of sour fruit can sometimes be avoided by harvesting daily and promptly discarding all spoiled fruit.

Then, there are the birds. Horned larks, sparrows, finches, doves, and other soft fruit and seed-eating birds seem to love figs. If you are a bird watcher, you can just sit in your yard and enjoy the show. If you are wanting fruit and are not careful, however, they will get to the fruit before you do. A nice, tasty fig fruit due to be at peak perfection on the next day can be devastated by bird predation before you at sunup can get outside to harvest your breakfast. It can be quite frustrating.

I have found that a solar-powered plastic owl works wonders in deterring bird populations for just enough time to harvest my fruit. I place the simulated owl in the canopy of my fruit tree and use an elastic cord wrapped around a sturdy branch to hold it in place. The solar cell in the head operates a mechanism that turns the head from time to time and gives the appearance of a real owl. It is fun to watch the birds homing in on my fruit to do a complete U-turn in the air when they see the owl. Of course, I have to move the owl regularly to different locations in the tree because no living owl stays in one place for long. If I do not move the owl, the birds get used to the decoy and predation begins once again.

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Despite these problems, the fig remains an excellent fruit tree for the Pinal County area. The subtropical varieties mentioned above seem to do best in this desert climate, although the hot summer temperatures can occasionally cause some leaves to turn brown and die. Young figs are susceptible to frost damage the first few years, but mature trees will tolerate temperatures down to 15° F.

Fig trees are normally pruned to an open center or vase-shaped frame. After transplanting, cut them back to approximately twelve to eighteen inches above the ground to induce low branching. The next winter, select four or five vigorous branches about three to four feet above the ground. These will become the major scaffold branches and will produce the fruiting wood for future harvest. All other limbs should be removed.

Annual dormant pruning in later years should include the removal of weak and undesirable branches and lightly cutting back branches to control the height and width of the tree, if necessary.

Nitrogen is regularly needed for good growth and should be added regularly. Mature trees, that is, those five years and older, need one pound of actual nitrogen or five pounds of ammonium sulfate per year. One pound of 21-0-0 equals two cups of product. Younger trees will need less.

Nitrogen fertilizers should be applied in a minimum of three applications. Divide the five pounds of fertilizer into three equal parts and apply the first in February, the second in May, and the final application in August. Better yet, give the tree smaller applications on a more frequent schedule: a couple of handfuls once a month would be good. The fertilizer should be evenly spread towards the outer area of the irrigation well before being irrigated into the soil. Other nutrients, such as phosphorus, potassium, and zinc, are generally sufficient in local soils for figs. However, an application of ammonium phosphate, 16-20-0, or treble super phosphate, 0-45-0, incorporated into the soil underneath the tree every third year or so can be beneficial.

Fresh figs should be harvested when they are fully ripe. Ripeness can be determined by bending the fruit neck. Ripe fruit will have a flexible stem, whereas green fruit stems will be stiff. To reduce fruit spoilage after harvest, remove the fruit with the stem still attached. Be careful not to bruise the fruit which could reduce its already short shelf life in the refrigerator.

Figs are good candidates for any home landscape where they can provide the benefits of seasonal shading and screening and sweet, good tasting fruit, but its dark green, handsome foliage and its thick, dense canopy also make it an ideal candidate for a topnotch landscape tree.

In almost all landscape designs, there is a place for screening plants, that is, plants that block an unsightly view or provide privacy for a secluded nook. Large shrubs, such as the Oleander and the Privet, and small trees, such as the Eldarica Pine and the Arborvitae, are often used for these purposes. The fig tree with its dense canopy and its close-to-the-ground growth habit can provide not only a tasty fruit in season, but can also fill a special niche in the landscape.

Most screening plants are evergreen, that is, they retain their leaves or needles throughout the year. The fig is deciduous, meaning that it will lose its leaves during the winter months. During the summer, when the fig has its leaves, its canopy is dense enough to screen out the most unsightly of views; but during the winter months when the branches are bare, much of its screening ability is lost. The benefit of the fig, however, is that where evergreens provide a never-changing view, the deciduous fig provides a different look twice a year that can provide variety to a landscape.

The mature edible fig tree will usually top out between 8–12 feet tall and reach a diameter of about the same size. The branches tend to spread out and down in their growth habit, which causes the lower skirt of the tree to drop down to about soil level. The result of this type of growth is a ground-level-to-treetop canopy that makes it ideal for screening purposes. Proper pruning can limit the size of the tree and make the canopy less dense if desired.

ORGANIC MATTER IMPROVES SOIL

Even though the weather is still relatively cool and there is not much going on in the garden, now would be a good time to pay attention to the health of your garden soil and to perhaps give it a shot of organic matter.

Southern Arizona soils are notorious in their ability to pack down into hard, impenetrable layers that prevent the entry of the essentials for good plant growth even after they have been well spaded, raked and smoothed prior to planting. One way to soften soils and to ease the hard, labor-intensive work that it takes to get a garden soil ready for planting is to frequently add a healthy dose of compost, decomposed manure, or other types of we-rotted organic matter.

The reason regular additions of organic matter are important for the garden is rooted in the soil characteristic that scientists have named soil structure. Soil structure simply refers to the way that the individual soil particles are physically arranged in place. If the particles are crunched tightly together with little space between them, water and air cannot enter the soil and plants generally suffer. A loose soil, where the particles are properly arranged and sealed into place, allows water and air to enter the root zone and nourish plant roots.

Soil organic matter is the secret to good soil structure. The addition of decomposed organic matter, the decayed remains of plants and animals in the form of well rotted steer manure, forest mulch, and compost will greatly improve most garden soils.

Organic matter helps improve soil structure by separating the individual soil particles from each other and allowing space for water and air to enter the soil. As the organic matter continues to decompose in the soil, the residues tend to glue the soil particles into place which helps keep the channels between the particles open for a long lasting improvement to the soil.

Organic matter also helps improve other soil problems like pH, low nitrogen fertility, poor micro organism activity and even caliche.

The reason that gardeners must be concerned with adding organic matter to soils is that the desert environment does not naturally provide this benefit. The lack of organic matter is a natural characteristic of our soils. In other parts of the country where rainfall supports the growth of leafy trees, grasses and shrubs, soil organic matter levels may reach 5 percent or higher. In our native desert soils, where low rainfall does not support the growth of many leafy plants, the organic matter content is generally no higher that 1 percent and often can go as low as 0.1percent.

How do you know if your garden soil is low in organic matter? Desert soils without organic matter tend to be difficult to work. Trying to drive a shovel into the ground that has little or no organic matter becomes a major effort. Many often report that spading the garden means jumping up and down on the shovel to penetrate the hard crust. Not only is this time consuming, it is also dangerous to one's health. Years ago, while working in my back yard, I learned this the hard way. In order to break the hard crust of soil, I began jumping on the steps of my shovel. Yes, I would hold the shovel with both hands, then jump in the air with both feet to land on both steps at the same time. While I understood the risks, it was the only way I could break the crust. Unfortunately, the shovel I was using was relatively inexpensive and therefor not as strong as I expected. I remember that one time when I jumped onto the shovel, the blade actually bent slightly and then returned to its original shape in just a heart beat. The rule of physics is that for every action, there is an immediate reaction. As the shovel sprang back into its original shape the force of it propelled me back up into the air and flipped me back to land seated on the ground. The shovel handle, now uncontrolled, landed on top of my head. Needless to say, that day I relearned several important things. 1) Safety first is important. 2) Compacted desert soils can be hard to manage. 3) Soil organic matter applied to the soil may be more important than I originally thought!

Low organic matter soils, depending upon whether they are mostly sand or clay, can also have drainage problems. Sandy soils without organic matter drain too quickly and must be irrigated often. Clay and silt soils tend to hold water too tightly, which prevents the entry of air to the root zone in a timely manner.

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If any of these conditions sound familiar, an application of organic matter is in order. If you are not sure whether your soil is short of organic matter, go ahead and add it anyway because the micro organisms that feed on these residues break down organic matter so quickly that if the soil isn't short now, it soon will be. The addition of soil organic matter should be a regular management task for all gardeners.

How often should organic matter be added? Flower and vegetable beds should receive a hefty dose of well rotted compost or manure at least every two or three years. This will require considerable effort as at least two to three inches of material should be spread out over the area and either shoveled or tilled into the top six to nine inches of the soil. In most Pinal County soils, the benefits of this type of application should last about three years.

An easier way to keep organic matter in the soil is to add less amounts throughout the growing season. For annual plants, like flowers and vegetables, new organic matter should be added each time the bed is worked up for planting.

Some gardeners have found a way to keep soil organic matter levels up with little effort. They like to work compost into the soil, plant, and then, after the new plants have emerged, come back in and lay a mulch of organic matter on top of the beds and in the furrows to help cool the soil and prevent evaporation of water from the soil. At the end of the growing cycle, the plants and any remaining mulch can be tilled into the soil. Then they reseed and lay down a new mulch layer. In this manner, the supply of organic matter in the soil is regularly and easily replenished.

While desert trees and shrubs, like Mesquite, Paloverde and Cassia, and others that naturally grow in low organic matter soils, do not require much organic matter in their root zones, other less adapted perennials may benefit from a good organic mulching regimen. For established trees and shrubs, simply lay the organic matter on top of the soil as a mulch and lightly rake it into the soil. If that seems impractical, let the irrigation water slowly, over time, carry the decomposing material into the soil profile.

The addition of decomposed organic matter into Southern Arizona soils provides not only an immediate improvement of the soil condition, but also supplies a long lasting effect that can benefit garden plants for several years into the future.

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 (520) 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: <u>http://extension.arizona.edu/pinal</u>

Richard Subson

Richard D. Gibson Extension Agent, Agriculture

RDG/te/sh/aw

59 mailed copies 262 emailed Have a sick plant or just questions about caring for your plants?

Visit our Plant Diagnosis Clinic held every third Thursday of month from 9:00 to noon at the U of A Cooperative Extension 820 E. Cottonwood Lane, Bldg. C Casa Grande, AZ 85122



Or you may call the Maricopa Agricultural Center at (520) 374-6263 and leave a message.

If you are able to email a picture, please send it with any information you can provide about the plant, and your contact information to the diagnostic team at <u>macmastergardener@gmail.com</u> and a Master Gardener will contact you.

Two Garden and Landscape Short Courses to begin in January 2018
Apache Junction classes begin on January 16, 2018
At the Central Arizona College, Signal Peak Campus, 805 S. Idaho, 1:00pm to 4:00pm
For more information or to register, please contact :
Carol at (602) 438-4003 or the Pinal County Extension Office at (520) 836-5221 ext. 0
Casa Grande classes begin on January 17, 2018
At the U of A Pinal County Cooperative Extension, 820 E. Cottonwood Lane, Bldg. C , 9:00am to 12:00pm
For more information or to register, please contact:
BJ Seemuth at (520) 431-6167 or the Pinal County Extension Office at (520) 836-5221 ext. 0

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