Things to Expect

FREEZING NIGHTS - Cover frost-sensitive plants; always remove covering during the day. Do not use plastic. Most citrus fruit will not freeze unless temperatures drop into the mid-20’s or lower for at least a couple of hours. Lemons, limes and other thin-skinned fruit on the upper and outer periphery of trees may receive some injury at about 28°F. If you use lights remember two things: 1. Place or shine the lights on the large limbs or trunk to warm the most mass; and 2. The higher the wattage of the bulb, the more heat is produced.

COLD WEATHER DISCOLORS FOLIAGE. Older leaves of evergreens turn dull green to yellow and even drop. Even some actively growing shoots may appear chlorotic. Winter lawns or some shrubs may develop purplish-green leaves.

DAMAGED CITRUS FRUIT - To determine if citrus fruit have been damaged by the cold, simply put them in water. The ones that float or ‘bob’ are damaged.

POWDERY MILDEW often appears on new growth. Repeated sulfur powder (when temperatures are less than 90°F) or fungicide applications are often needed to protect successive leave growth. Roses, grapes, cucurbits and euonymus are the most likely hosts. As an alternative, Cornell University suggests trying a mixture of ½ tsp. baking soda, dash of dish soap, and 12 oz. water. Spray every 3-4 days.

APHIDS ON TREES, SHRUBS, VEGETABLES OR FLOWERS may occur. Populations are often temporary. Use soapy water sprays or add detergent to other spray formulations for better coverage.

WINTER LAWN DISEASES - Don’t water too often, apply fungicide when needed and avoid mowing during high moisture periods. The perennial ryes are more disease resistant than annual rye.

Things to Do

CHECK STAKED TREES - Remedy trunk injury from ties and rubbing.

PRUNE DECIDUOUS FRUIT AND SHADE TREES, ROSES AND GRAPES in January, but first sharpen up your know-how. Prune citrus, bougainvillea and other freeze-tender shrubs and trees after they begin to grow. Take advantage of the many fruit and pruning demonstrations (see page 11).

CONTROL WEEDS - Contact herbicides are effective on young, tender seedlings. Midday applications are more effective during the winter season.

FERTILIZE WINTER LAWNS monthly for good green color. Nitrate fertilizers give quickest response during cool seasons. Fertilizing dormant bermuda lawns will stimulate weeds.

PREPARE GARDEN SOILS for spring vegetable planting; early planting means better yields in most spring crops.

WATER DORMANT BERMUDAGRASS LAWNS about monthly if rains aren’t sufficient.

FERTILIZE fruit, nut and shade trees, shrubs, and vines, but don’t fertilize over seeded rye lawns after February. Don’t dethatch common or hybrid bermudagrass lawns until early May or later.

APPLY IRON to bottle brush, pyracantha, silk oak, and other plants with iron deficiency symptoms. Chelated forms of iron work faster.

THE BARE ROOT PLANTING SEASON IS HERE. To assure success when planting bare root roses, trees and shrubs, good quality plants are particularly important. Cool, moist holding environments are recommended to help prolong the viability of bare root plants. Good soil preparation is equally essential. Dig a large wide hole so it will easily accommodate the plant’s normal root spread. Blend organic mulch or compost and other recommended soil additives into the backfill for roses; for other plants it is not as necessary.

Terry H. Mikel
Extension Agent, Commercial Horticulture
Healthy Gardening

During this season of planning, make a 1998 New Year Resolution to garden safely and be injury-free. This is a perfect time to re-think some of our gardening habits. In general, let’s remember to:
1. Use sun screen and wear hats and other sun protective clothing.
2. Have a water bottle handy and drink often to avoid dehydration.
3. Wear good gardening gloves and use kneepads.
4. Work at the time of the day that you feel your best and don’t overdo (the work will still be waiting tomorrow).
5. Clean and maintain your gardening equipment
6. Ask for help!

Before you actually step into your yard or garden, WARM-UP. This could be a short five minute walk, starting out at a slow pace and then picking up the pace. Now that “the blood is flowing,” spend five minutes STRETCHING. Stretching prepares us for movement, keeps our muscles supple, prevents injuries due to muscle strain, and promotes circulation. STRETCHING FEELS GOOD, if done the correct way. Watch a cat or dog stretch. Their stretching movements are relaxing and fluid - almost like a dance in slow-motion. You can devise your own gentle stretching routine - any action that you enjoy which offers you a “stretch.” Remember if you have any health problems, check with your doctor first about an exercise regimen.

Now, onward to the garden. Set up your work area first. Gather all your tools and equipment. Use the proper tools and keep them clean and sharpened. Today there are many ergonomically designed tools to assist us with gardening. Ergonomics is a type of biotechnology that applies knowledge about the mechanics of the body to the design of tools and the environment, so there is a comfortable fit between people, the things they use, and the places in which they work. For example: an ergonomic trowel for people with arthritis in their fingers, uses the palm of the hand for gripping and keeps the wrist straight while digging.

Think of your body position while you work. Awkward postures invite injury. Use knee pads, sit in a chair, use long-handled tools, etc. If you have difficulty bending, consider container or raised-bed gardening. Use proper body mechanics (movements).
1. To LIFT things, don’t bend at the waist. Keep your back straight, bend your knees and squat (using your legs). Hold items close to your body and use both hands. Keep your arms low and elbows close to your body to maximize your strength and avoid strain. Lift the item, stand up straight and then turn by moving your feet.
2. If you are standing in one area for awhile, change your position frequently by shifting the weight in your legs from one to the other. Wear good shoes with support (not sandals or slippers).
3. It is less stressful to PUSH an item than to pull it. Use a cart for heavy loads. Ask for help.
4. Remember to BREATHE. Take deep breaths periodically while working.
5. Follow your body’s clues. Rest a few minutes before your muscles start to ache. Change position. Take a water break.

When you are finally finished, remember to warm down. Take a brief walk and stretch again, to prevent muscle cramps. Depending on the time of year, a short swim or a soak in a warm tub will feel great. Then relax in a comfortable chair with a tall glass of water and close your eyes and “picture” your future garden area. Healthy Gardening in 1998!

Vicky Burke
Master Gardener & Certified Pediatric Nurse Practitioner
**Easy Care Plants**

All of us crave things that are easy. What else could explain wrinkle-free clothing and no-wax floors. This is evident in gardening as well. How often are plants or styles touted as low-maintenance, or easy care? And we want them; countless calls are received for plants that don’t take much care, or can tolerate being left on their own for the summer. But what plants can be that easy, and take that low level of care? Actually there are quite a few, some native, some not; but all exceptional in their tolerance for minimal watering and care even in the long, hot low desert summer.

First, it must be clear that there are no plants which require no water. It is really more a question of how much and how often. Plants which are local natives would head the list of effortless low care plants for any garden, and the champion of that group is creosote (*Larrea tridentata*).

I once read that creosote could live for 3 years without a rain - an astounding feat for any plant, but all the more so if one takes our extreme heat into account. Even the most low maintenance among us don’t push our plants quite that hard, but it gives you an idea just how tough they are. Creosotes are chameleons to water; give them plenty on a regular basis and the leaves are lush and dark, creating a soft, billowy shrub. Watered less, or even not at all (if well established), the plant is a spare, lean whip of a plant; hard and able to withstand anything. These plants are glances, just barely there, with only the great grey/black stems to mark their place.

In my own yard, one of my favorite no-care plants is brittlebush (*Encelia farinosa*). Most grow on their own and they are charming. In the winter and good times, they are a fine grey-green, topped with sprightly yellow flowers, round and graceful. But when it begins to get dry and the stalk begins to dry, it changes character completely. The leaves harden, thin, fading to a pearly grey until finally the leaves are white, curled and brittle. Throughout the summer this stark ghost of a plant frames an entire corner of the yard, incredibly lovely in its endurance.

Yet another rugged low care plant from our native flora is globe mallow (*Sphaeralcea ambigua*). I think this plant can grow anywhere and do anything. Where there is extra water they get huge, flopping over with the weight of their bloom. If conditions are just right - some water but not too much - it will never go dormant, growing and blooming 3, 4, 5 times during the year. Where conditions are rougher, the plant blooms in the spring, maybe again in the fall, and loses most of the leaves for the summer. While not as pretty as brittlebush or creosote during the summer, it will withstand it with no care and come back hale and hearty in the fall.

I, and many other good gardeners, find desert marigold (*Baileya multiradiata*) a difficult plant to establish from seed. However, if it finds its own way it is indestructible and will bloom and thrive all year long. I have one that came up as a seedling in the front yard; we moved it to the back in the winter, and it has never been out of bloom since. Subsequent free seedlings perform the same with only occasional watering through the summer.

But it is not entirely necessary to be native to be able to be an effortless plant for this area. Feathery cassia (*Cassia artemesioides*) is a problem for me; it loves our neighborhood and soils so well that it is re-seeding bit too much. True, it takes no care and will easily survive with no supplemental care, but some care should be taken with its culture. Like many plants that are just a bit too well adapted, it can easily turn into a pest if you aren’t careful. Although very hardy to our conditions, it should be used only in the urban core - never adjacent to or near preserves or other stands of native vegetation.

Regardless of what you personally think of them, oleander is one of the easiest and most drought tolerant plants in the area. Native to the deserts of northern Africa, this plant is ranked with creosote for its extreme hardiness to drought. Blooming throughout the long summer, in a host of colors, with double or single flowers - occasionally very fragrant - these are wonderful, low care plants for the low desert. With only minimal summer watering this shrub will be a colorful hedge or single plant in this area.

This list would be incomplete without some succulents - truly some of the most enduring plants of negligent culture. But not all cacti or succulents are designed for no summer watering. Some of the best are the barrel cacti, especially those in the genus *Ferocactus*. Compass barrel (*Ferocactus wislizenii*) and its close relatives *F. acanthoides* and *A. covelli* are extremely well suited to the long, dry summers of the low desert.

Often when using succulents, it depends on how good you want them to look. In this group there is some distance between mere survival, reviving when water is yet again available, and looking their best. So if desiccation and drooping aren’t a consideration, some of the low desert prickly pears such as purple prickly pear (*Opuntia violacea*) or desert prickly pear (*Opuntia phaeacantha*) might serve. Beaver tail prickly pear (*Opuntia basilaris*) loathes summer watering so it is always a good choice for gardens without water for the entire summer.

Plants which exhibit strong summer dormancy - typically plants from the Mediterranean, the Mohave desert or parts of the Baja peninsula - are a group for effortless growing when summer care is absent or at a minimum. Bush alfalfa (*Medicago arborescens*), Elephant tree (*Pachycormis discolor*), Jatropha cordata, *Jatropha dioica* or the boojum (*Fouquieria columnaris*) readily fall into this group.

Whatever your interests, there are easy and effortless plants willing to endure the long hot summer, waiting patiently for the return of the cooler weather, fall and winter rains, and the admiring gaze of the low maintenance gardener.

Mary F. Irish
Desert Botanical Garden
Plant Disease Detective
Damping off, Root Rot, and Seedrot

Damping off disease of seedlings is widely distributed all over the world. The disease affects seeds, seedlings, and older plants of almost all kinds of vegetables, flowers, cereals, fruit. Especially affected are peppers and tomatoes. In each case, the greatest damage is done to the seed and seedling roots during germination either before or after emergence. Quite frequently, seedlings in seedbeds are completely destroyed by damping off, or they die soon after they are transplanted. In many instances, poor germination of seeds or poor emergence of seedlings is the result of damping-off infections in the preemergence stage.

The symptoms caused by the damping-off fungi vary with the age and development of the plant affected. When seeds of susceptible plants are planted in infested soils and are attacked by the damping-off fungi, they fail to germinate, become soft and mushy, turn brown, shrink and finally disintegrate. Seed infections taking place in the soil cannot be observed; the only observable manifestations of the disease are poor stands. Poor stands may also be the result of infections of the seedlings by the damping-off fungus after the seed has germinated, but before the seedling has emerged above the soil line. The initial infection appears as a slightly darkened, water-soaked spot. The infected area enlarges rapidly, the invaded cells collapse, the seedling is overrun by the fungus and dies shortly after the beginning of the infection. Older plants are seldom killed when infected with the damping-off pathogen, but they develop root and stem lesions or root rots, their growth may be retarded considerably, and their yields may be reduced dramatically.

Most seedlings are susceptible during the first two weeks of their life. Spore germ tubes of *Pythium* come in contact with seeds or seedling tissues of host plants either by chance or because the exudates of these plants serve as nutrients. The fungus enters the seeds by direct penetration of the moistened, swollen seed coats or through cracks and further penetrates the embryo or emerging seedling tissues through mechanical pressure or dissolution by means of enzymes (enzymes secreted by the fungus dissolve the middle lamella, which holds the plant cells together, resulting in maceration of the tissues). Further invasion and breakdown of tissue occurs as the result of growth of the fungus between and through the cells. The fungus consumes many of the plant cell substances and the product of their breakdown and uses them as building blocks for its own body or as an energy source for its own metabolic activities. Thus, infected seeds are killed and turn into a rotten mass consisting primarily of fungus and plant substances such as suberin and lignin, which the fungus cannot break down.

*Pythium* diseases in the greenhouse can be controlled through the use of steam or dry heat applied to growing media, and through the use of chemically treated seed. Sterile media such as vermiculite, perlite, sphagnum moss or peat moss can be used alone or mixed with sterile sand or soil to grow seedlings. If no sterile medium or soil is available, virgin soil may be used from an area that has never been cultivated. Greenhouse benches and containers must also be sterilized or they must be treated with a 1% copper sulfate solution. Even so, re-contamination occurs often and easily from infested soil on the greenhouse floor, tools, water hoses and other items.

Few crops are known in which varieties showing any resistance to *Pythium* have been found, and so far no commercial varieties resistant to this pathogen are available. In recent years however, control of *Pythium* seed rots and damping-off has been obtained by treating seeds with conidia of the antagonistic fungus *Trichoderma*. Certain cultural practices are sometimes helpful in reducing the amount of infection. Good soil drainage is the most important of all. Improvement of heavy soils with mulches and improvement of air circulation is advisable. Planting should be done when temperatures are favorable for fast plant growth. Application of excessive amounts of nitrate forms of nitrogen fertilizers should be avoided. No one crop should be planted in the same field location for more than two consecutive years since that tends to increase the fungus population in the soil unless the soil is periodically sterilized. In the field, where soil sterilization is difficult and expensive, seed treatment with one or more of a number of chemicals is the most important disease preventive measure. The most commonly used material for seed or bulb treatment are chloramil, thiram, captan, dichlone and ferbam.

Losses from this disease vary considerably with soil moisture, temp and other factors.

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Call for Authors, Ideas

We are expanding to more pages starting with the March/April issue. We need more writers. We also need ideas for articles or regular columns. Do you grow unusual plants? Do you grow peonies, oriental poppies, lilacs, hostas, golden glow (Rudbeckia laciniata ‘Hortensia’), goldenrod (Solidago), or rhubarb? Please call your suggestions in to Shanyn Hosier at 470-8086 Ext. 306 or email me at perflowers@aol.com. Thanks so much for your help.

-The Editor
Plant Disease Detective
Powdery Mildew

Powdery mildew in Arizona is caused by several common species of fungi, Erysiphe cichoraeorum, E. polygoni and E. graminis. It can be found primarily on leaf surfaces and aerial plant parts, mainly on the tops of leaves but also found on the undersides of leaves, young shoots, stems, buds, flowers and young fruit. It is carried by air currents. This is an air born fungus that is very persistent in our desert climate.

Powdery mildew’s host range includes over 7000 plants globally. It is found on over 160 unrelated landscape plants in Arizona. Plant families affected include: grapes, willows and poplars, roses, cucurbits, legumes, grasses (cereals), crepe myrtle, lilac, apple, cherry and peach trees. It is found in drier areas all over the world. Activity decreases as rainfall increases.

A whitish powdery covering over infected leaves, stems and other aerial plant parts is the first visual sign. The white powder later turns yellow-brown, and finally black. Infected leaves are often curled or twisted. Severe leaf infection may cause yellowing, reduced size and defoliation of leaves. It causes poor growth and lower yield, but seldom kills the plant. It utilizes the plant’s nutrients, reduces photosynthesis, increases respiration and transpiration, impairs tissue growth, reduces crop yields by as much as 20-40 %, and infected flowers don’t open.

These fungi are obligate parasites, that is, they cannot grow on dead plant tissues or on artificial media in the laboratory. Once infection has begun, the mycelium continues to spread becomes active. Spores from these structures become the primary source of infection during plant growth in the spring. Under mild winter conditions in the desert areas of Arizona the powdery mildew fungi occur primarily in the asexual, conidal stage. The life cycle is very simple. Conidia (tiny, pinhead-sized, and spherical spores) germinate on dry leaf surfaces even when atmospheric humidity is low. Spore germination and penetration of tissue usually occurs in 6 hours or less. Many species can produce a new generation of spores in 4 to 6 days under favorable conditions. An increase in humidity allows the spores to break open and disperse. Powdery mildew doesn’t require free water for germination, an increase in humidity is all that is needed. The fungus loves warm days and cool nights (temperature range of 50° to 85°F.).

Prevention and control involves keeping leaves dry and providing good air circulation. Because the entire mycelium (vegetative growth) is on the host surface, the fungus can be killed after infection has occurred. The powdery white mycelium will remain but the fungus will be dead. Periodically check new plant growth for reinfection. If it is still spreading then re-treat. Also, plants that are not susceptible to powdery mildew can be selected for landscapes. Soil treatments and plant rotations are generally ineffective.

Organic chemical controls include lime sulfur (a wettable powder for fruits and roses, applied before the buds open which kills recently germinated disease spores), sulfur or garden sulfur (a wettable powder, used as a dust or spray on listed fruits and ornamentals for a protective method rather than control), and baking soda in water with some soap (a home remedy: use with caution). Inorganic chemicals include wettable powders and liquid fungicides that will form a protective barrier, but often do not kill the fungus. Read the label for plant materials and disease control.

Other control and prevention methods consist of growing disease resistant plants. Keep leaves dry; water early in the day so plants can dry off more quickly. Choose a sunny location where foliage can dry off as quickly as possible. Provide good air circulation; give plants adequate spacing by thinning and controlling weed growth. Wash off the spores - the fungus cannot live in the presence of free water.

Lynne Senzek
Master Gardener
Meet the Natives- Arizona Native Trees

Native trees define our Arizona landscapes whether in an aspen grove or a mesquite bosque. The unique sense of place that Arizona trees provide can in turn be translated to our urban landscapes. In this continuing series of articles, I will focus on the Arizona native trees that our suitable for cultivation in the Phoenix area. Trees form the backbone of the landscape. Their proper selection, placement, planting, pruning and long term care are essential to make an impact in the landscape. Given some thought, native Arizona trees can do much to enhance our regional landscape image and in turn enhance the surrounding native plant communities. As is true with the selection of all trees in the landscape, some design and horticultural considerations are the following:

• Know the basic shape and ultimate size of the tree;
• Follow basic planting and pruning standards;
• Consider the use of trees for seasonal color and fragrance, wildlife habitat and the potential for water/energy conservation.

Many of our native trees such as ironwood, mesquite and palo verde are large tree shrubs with their branches growing to ground level. You might consider leaving the branches low to increase stability and screening.

Acacias are a wide ranging group of desert plants with some 1200 trees and shrubs found worldwide. Acacias, being prominent members of the legume family have the ability to fix nitrogen on nodules found on their roots and thus require no supplemental nutrition when established in landscapes. Three native acacias commonly used in urban landscapes in the Phoenix area are the following: Acacia constricta (whitethorn acacia), Acacia farnesiana (sweet acacia) and Acacia greggii (catclaw acacia).

Acacia constricta whitethorn acacia - found throughout the southwestern US, Sonora, Baja California and southern Mexico from 1,500 to 6,500 ft. in elevation. Whitethorn acacia is a small tree or large shrub to 10 ft. in height and 15 ft. in width and is characterized by lacy green foliage, small white thorns and fragrant yellow ball flowers borne in the spring. This tree-shrub is an excellent wildlife plant for quail habitat and bees make honey from its flowers. Its fragrant flowers and white thorns for a security barrier are an added bonus in the landscape.

Acacia farnesiana sweet acacia - commonly encountered in the Phoenix area landscapes. Urban landscapes are perfumed in late winter and early spring by its extremely fragrant yellow ball flowers (from which a perfume fragrance has been extracted in France) borne on a tree growing to 30 to 45 ft. in height and 30 ft. wide. This acacia has been through the mill taxonomically. At one time A. smallii and A. minuta were split out from A. farnesiana but recently these two species have been lumped back into A. farnesiana. Being a wide ranging species throughout the southwestern US, Mexico and into South America there are numerous clones of sweet acacia with varying degrees of hardiness. The ‘A. smallii’ clones of sweet acacia are still recognized by regional growers as hardy to about 10°F. Sweet acacia is excellent front yard and courtyard tree.

Acacia greggii catclaw acacia - one of our best wildlife plants for the region. With fairly dense cover (which hides the curved catclaw thorns, thus the name) its numerous seed pods are relished by quail and its spring cream flowers are a source for catclaw honey which is commonly offered for sale. Catclaw acacia integrates well into urban wildlife habitats. Catclaw acacia is found throughout the southwestern US and Mexico commonly grows as a large shrub or small tree to 15 ft. in height and 25 ft. in width. In 1993 an outstanding specimen was found in Paradise Valley landscape that measured 33 ft. in height, a crown spread of 72 ft. and a trunk circumference of 53 in. Needless to say this tree is one of the largest catclaw acacias known in cultivation. Catclaw acacia grows in some of the hottest desert areas and is extremely drought resistant but can tolerate winter temperatures down to 0°F. Catclaw acacia makes an excellent security barrier, any intruder would become well acquainted with this Arizona native.

Cercidium or palo verdes with 10 species are characterized by green photosynthetic stems and bright yellow flowers are found throughout the Sonoran Desert of Arizona, Sonora and Baja California, southern Texas, southern Mexico and into the Monte Desert of Argentina. Palo verde is the state tree of Arizona of which we have two native species: Cercidium floridum (blue palo verde) and Cercidium microphyllum (littleleaf or foothill palo verde).

Cercidium floridum blue palo verde - the signature native tree of an Arizona spring with masses of brilliant yellow flowers in good years. This semi-riparian tree is commonly found in dry washes in the Sonoran Desert of southern California, central and southern CA., Sonora and Baja California from near sea level to 4,000 ft. Blue Palo Verde can commonly reach 30 ft. in height and 35 ft. in width. In

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1995, an outstanding specimen was found on the Goldwater Air Force Range in Maricopa County with a height of 44 ft., a crown spread of 50 ft. and a trunk circumference of 73 in. Its name is derived from the characteristic blue gray color of the upper stems. It grows as a massive tree shrub in the Sonoran Desert but can be pruned up as an outstanding front yard tree. Desert birds commonly nest in blue palo verde and desert tortoise have been observed eating the fallen flowers. Palo verde root borer can infest the roots of blue palo verde and probably the best defense is regular irrigation for a healthy tree. Terrific flower shows, shade giving and wildlife habitat, blue palo verde has many positive attributes.

_Cercidium microphyllum_ foothill palo verde - one of our most drought tolerant native trees. This desert tree grows on rocky slopes across the Sonoran Desert from 500 to 4,000 ft. Light green photosynthetic stems, small leaves (microphylls) and light yellow flowers characterize foothill palo verde. Occasionally, one encounters hybrids of blue palo verde crossed with foothill palo verde and are humorously called BlueFoots. Foothill palo verde typically grows to 15 ft. height and width and specimens have been found with a crown spread of 33 ft. and a height of 30 ft. Foothill palo verde easily naturalizes in urban landscapes and makes an interesting accent tree. Foothill palo verde honey is commonly offered for sale.

_Chilopsis linearis_ desert willow - desert willow is a mono-typic genus in the Bignonia family. For spectacular late spring and early summer orchid-like flowers which provide a feast for hummingbirds and its bright green leaves, nothing beats a desert willow. Desert willow has a wide range across the southwestern US and into Mexico and is commonly seen in dry washes from 1,500 to 5,000 ft. Desert willow typically grows to 20 ft. high and 15 ft. wide. A desert willow was reported in 1995 from Russell Gulch, Globe, AZ with a remarkable height of 68 ft., a crown spread of 48 ft. and a trunk circumference of 160 in. Desert willow has numerous flower color selections in white, light pink, lavender, deep purple red and royal purple with numerous named selections. Following the glory of summer comes desert willow’s leafless nature in winter. It should be planted with other desert plants to back it up during this leafless period. Desert willow works well in an urban wildlife habitat and desert birds incorporate the seed pods into their nests. Russian botanists have made a successful cross of _Chilopsis linearis_ with _Catalpa bignonioides_. This hybrid _X Chilalpa tashkentensis_, combines the large clustering flowers of caltapa with flower color of chilopsis.

_Lysiloma watsonii_ (L. _microphylla_ var. _thornberi_) desert fern - one member of about 30 species of leguminous trees and shrubs that are found throughout southern Arizona, Sonora, Baja California, Florida, Cuba, the Bahamas and throughout the Caribbean Basin. Desert fern barely makes it into Arizona and is found in the Rincón Mountains near Tucson, and is more commonly seen in the thorn shrub of Sonora, Sinaloa, Chihuahua and Durango. Desert fern is distinguished for its semi-evergreen deep green fernlike foliage that provide shade for a hot summer day. Desert fern grown in fairly frost free areas can be a tree 25 ft. in height and 15 ft. wide. One remarkable specimen on the University of Arizona campus in 1993 measured 27 ft. in height, a crown spread of 33 ft. and a trunk circumference of 58 in. Desert fern blooms in the spring with cream ball flowers followed by characteristic brown pods and works well as a patio tree.

_Olneya tesota_ Ironwood - the signature tree of the Sonoran Desert found throughout central and southern Arizona, southern California, Baja California and Sonora below 2,500 ft. _Olneya_ is a monotypic genus and as the name suggests it has a hard, heavy wood. One cubic foot of ironwood weighs 66 lbs. and is valued for carving and firewood. Its bright green foliage and often twisted gray trunk distinguishes ironwood. Ironwood can commonly grow to 25 ft. in height and 25 ft. wide with bright green foliage. One specimen from the Childs Valley, AZ in 1995 has been measured growing to 45 ft. in height, 43 ft. crown spread and 170 in. trunk circumference. Delicate pink to purple flowers cover this magnificent desert tree during late spring. Ironwood is commonly salvaged on desert development projects. In the Sonoran Desert, ironwood grows as a large tree shrub but can pruned up for an exceptional front yard tree.

Mesquites are the massive desert shade trees commonly seen in Phoenix landscapes. Mesquites have provided food, firewood and shade over many decades for desert dwellers. _Prosopis_ with 44 species is wide-ranging throughout the southwestern US, Mexico and into South America. We have three native mesquites: _Prosopis glandulosa_ var. torreyana (honey mesquite), _Prosopis pubescens_ (screwbean mesquite), and _Prosopis velutina_ (velvet mesquite). _Prosopis glandulosa_ var. torreyana honey mesquite - a massive mesquite growing to 30 ft. in height. Honey mesquite has a weeping appearance and superficially resembles a California pepper tree. Honey Mesquite is

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southwestern US and southward into Sonora, Sinaloa, Chihuahua and Baja California. Its bright green foliage gives a refreshing look to the landscape. The sweet smelling catkin flowers are borne in the spring, followed by edible pod fruits. Honey from honey mesquite is commonly offered for sale.

*Prosopis pubescens* screwbean mesquite - upon encountering one in the landscape, you first notice its unique twisted fruits. It is often called tornillo in reference to these twisted fruits. Screwbean mesquite has a wide range, found throughout central and southern Arizona, southern California, Nevada, Utah, New Mexico, western Texas, Baja California, Sonora and Chihuahua at elevations up to 4,000 ft. Screwbean mesquite typically grows 15 ft. high and spreads as a multiple trunk tree or large shrub. Screwbean mesquite works well in urban wildlife habitats.

*Prosopis velutina* velvet mesquite - one of our best native trees for urban wildlife habitat. Velvet mesquite provides excellent escape cover for birds. In urban landscapes this mesquite can reach 40 ft. in height and wide. An outstanding velvet mesquite was found in 1993 on the Hathaway Ranch, AZ that measured 46 ft. high, a crown spread of 60 ft. and a trunk circumference of 196 in. Velvet mesquite is widespread throughout central and southern Arizona, southern California, New Mexico and Sonora from 1,000 to 5,000 ft. The name velvet mesquite is derived from the soft velvet-like growth commonly seen in the spring on this mesquite.

*Vauquelinia californica* Arizona rosewood - Arizona rosewood is a bright evergreen small tree or large shrub commonly growing to 15 ft. high and 10 ft. wide in urban landscapes. An outstanding specimen was found in 1993 in the Ajo Mountains of Organ Pipe National Monument growing to 47 ft. in height and 40 ft. wide with a trunk circumference of 118 in. Arizona rosewood ranges throughout central and southern Arizona, southern California, Baja California, Sonora from 2,500 to 5,000 ft. Arizona rosewood is characterized by bright green linear leaves with cream colored flowers borne in the spring. The name rosewood relates to the reddish brown heartwood of this tree-shrub. Arizona rosewood can be used as a small specimen tree or a large screening shrub.

Imagine the fragrance of sweet acacia perfuming the air in late winter, a burst of yellow from a blue palo verde, a white-winged dove nesting in a velvet mesquite, a hummingbird working the purple orchid-like flowers of desert willow on a warm summer day and the subtle pink of ironwood flowers capturing the last rays of sunlight at sunset. Native trees offer much to desert dwellers. “Consider the life of trees. What trees acquire from man is inconsiderable. What man may acquire from trees is immeasurable. From their mute forms there flows a poise, in silence, a lovely sound and motion in response to the wind. What peace comes to those aware of the voice and bearing of trees,” so wrote naturalist Cedric Wright. Plant a native tree and let it enrich your life and your desert gardening spirit.

Kent Newland
former President of the Phoenix Chapter, Arizona Native Plant Society

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### Schedule of Urban Horticulture Classes for the Public

#### Entomology Series

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<thead>
<tr>
<th>Class</th>
<th>Topic</th>
<th>Date</th>
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<tbody>
<tr>
<td>1</td>
<td>Basic Bugs</td>
<td>January 10, 1998</td>
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<tr>
<td>2</td>
<td>Garden Pests</td>
<td>January 17, 1998</td>
</tr>
<tr>
<td>3</td>
<td>Household Pests</td>
<td>January 24, 1998</td>
</tr>
<tr>
<td>4</td>
<td>Beneficial Insects</td>
<td>January 31, 1998</td>
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Time - TBA
Location - TBA
Cost - $20 each or $70 for all 4.

#### Basic Gardening I Series

<table>
<thead>
<tr>
<th>Class</th>
<th>Topic</th>
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<tbody>
<tr>
<td>1</td>
<td>Soils</td>
<td>February 14, 1998</td>
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<td>2</td>
<td>Fertilizers</td>
<td>February 21, 1998</td>
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<td>3</td>
<td>Irrigation</td>
<td>February 28, 1998</td>
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<td>4</td>
<td>Garden Techniques</td>
<td>March 7, 1998</td>
</tr>
</tbody>
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Time - Saturday mornings, 9 a.m. to 12 p.m.
Location - Maricopa County Cooperative Extension office, 4341 E. Broadway Rd., Phoenix
Cost - $20 each or $70 for all 4.

#### Citrus Series

<table>
<thead>
<tr>
<th>Class</th>
<th>Topic</th>
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<tbody>
<tr>
<td>1</td>
<td>Citrus Varieties</td>
<td>February 13, 1998</td>
</tr>
<tr>
<td>2</td>
<td>Tree Maintenance</td>
<td>February 20, 1998</td>
</tr>
<tr>
<td>3</td>
<td>Citrus Problems</td>
<td>February 27, 1998</td>
</tr>
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</table>

Time - Friday mornings, 9 a.m. to 12 p.m.
Location - Northwest Valley Satellite office, PORA Building, 13815 Camino del Sol, Sun City West.
Cost - $20 each or $50 for all 3.

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<thead>
<tr>
<th>Class</th>
<th>Topic</th>
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<tr>
<td>1</td>
<td>Citrus Varieties</td>
<td>February 24, 1998</td>
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<tr>
<td>2</td>
<td>Tree Maintenance</td>
<td>March 3, 1998</td>
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<tr>
<td>3</td>
<td>Citrus Problems</td>
<td>March 10, 1998</td>
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</tbody>
</table>

Time - Tuesday afternoons, 1 p.m. to 4 p.m.
Location - Sun Lakes
Cost - TBA

#### Basic Gardening II Series (Flowers)

<table>
<thead>
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<th>Class</th>
<th>Topic</th>
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<tbody>
<tr>
<td>1</td>
<td>Roses</td>
<td>March 17, 1998</td>
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<tr>
<td>2</td>
<td>Annual Flowers</td>
<td>March 24, 1998</td>
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<tr>
<td>3</td>
<td>Perennials &amp; Wildflowers</td>
<td>March 31, 1998</td>
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<tr>
<td>4</td>
<td>Drying &amp; Edible Flowers</td>
<td>April 7, 1998</td>
</tr>
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</table>

Time - Tuesday evenings, 6 p.m. to 9 p.m.
Location - Maricopa County Cooperative Extension office, 4341 E. Broadway Rd., Phoenix
Cost - $20 each or $70 for all 4.

*Call 470-8086 Ext. 306 for more information.*
How to Grow African Violets

Anyone can grow beautiful African violets ANYWHERE if they will provide the simple conditions required for healthy growth.

Adequate light is most important for abundant bloom. Any window that has strong bright light is good. Mild direct sunshine is beneficial. Shield from hot mid-day sun with sheer curtains. Turn pots ¼ turn each day. Light intensity decreases sharply as you move away from the light source, so do keep the plants as near the window as possible.

If you do not have good natural light, use fluorescent lights 12 to 14 hours a day. Cool white, daylight or tubes designed specifically for growing plants may be used alone or in combination. Distance from lights depends upon intensity and type of tube as well as the variety of the plant. A general rule is 12 to 16 inches from the top of the pot to the bottom of the light tube. Light fixtures should be adjusted to raise or lower to attain desired height.

If plants grow upright with long leaf stems, move them closer to the light. If they grow too compactly or become hard and brittle, move them further away from the light. At proper distance and with proper feeding, plants will be flat uniform rosettes with many blooms.

Proper watering is the most important single factor of good African violet culture. Use any water that is fit for drinking. NEVER use water that has been through a water softener. Always use tepid water. Watering may be from the top, the bottom, or by wick. We advise every third watering should be from the top to wash down accumulating salt. A gentle wash with tepid water of all foliage is helpful to keep plants clean. DO NOT expose to direct sun or drafts while foliage is wet. Never allow plants to stand in water after the soil has taken up what it can hold. VIOLETS DO NOT LIKE COLD FEET. Check to see that plants are ready for watering. Remember, plants get air not only through foliage but also through the roots, so DON’T overwater.

We recommend using a well balanced fertilizer, such as 15-30-15 every time you water. Do not over feed. Excess fertilizer will burn roots and may cause hard brittle foliage. Too little will give poorly light-colored foliage and small flowers.

The ideal temperature is 65°F to 70°F at night with a 5°F to 6°F rise during the day. Temperatures below 55°F for any extended period will slow the growth. If too hot, plants will grow sappy and spindly with too few blooms which drop before gaining a good size. Better a bit cool than too hot, especially if humidity is low.

Around 40% to 50% humidity is good. Humidifiers are great if you have an unusually dry house. Placing your plants on trays of moist pebbles would be a simple solution. You can also mist your plants, but not while exposed to the sun.

Most indoor plants do best in a light, porous medium, which provides good drainage. It should always be sterilized. When available, it is best to buy one of the soil mixes especially prepared for African violets. Heavy or poor drainage soil can be improved by adding conditioners such as vermiculite and perlite.

Rosemary Lort
President, Roadrunner African Violet Society

* See also University of Arizona Fact Sheet MC42, “African Violets Don’t Bloom Sometimes.”

Christmas Tree Recycling

The City of Phoenix Clean and Beautiful again will provide opportunities for residences to recycle Christmas trees. Fourteen city parks will accepts single trees from residences from 9 a.m. to 4 p.m. on Saturday and Sunday, January 3-4.

Each area will have collection bins, trucks or chippers to convert trees into mulch for use on city projects. Last year more than 80,000 trees were recycled. Check with the City of Phoenix Parks and recreation department for the site nearest you. To donate a living tree to beautify a park or school, call the Parks, Recreation and Library Department at 602/262-6386.

A to Z equipment Rental & Sales also will accept trees at no charge from 9 a.m. to 4 p.m. on January 2-3. Stores are located at 4050 E. Indian School Rd. And 15634 N 32nd St.

If you’re not a Phoenix resident, check with your city’s Parks & Recreation department to see if they have a similar program for tree recycling or donating a live tree.

Book Review


Robert Kourik is a known garden writer who has penned many magazine articles and authored or co-authored seven books on gardening.

If we could only get anyone with pruners in hand to pick up and read this book! Knowing how plants develop and grow is the first step toward effective pruning. Knowing what effect your pruning cuts have on your tree or shrub will let you know how the plant will grow thereafter.

This book doesn’t ignore Arizona either as many gardening books do. References are made concerning exceptions or differences with pruning in the heat of the Arizona desert.

With the thousands of citrus trees growing in the Valley, the author missed a chance to inform and educate a large audience here. Very little is covered in that area. Roses, on the other hand, are extensively discussed. Good idea! There are millions of rose lovers and growers nationwide.

Choosing tools and tool maintenance is covered but I would like to have seen a little more stress put on the importance of sharp, clean tools. Keeping tools disinfected with Lysol™ or rubbing alcohol to destroy pathogens on them should have been brought up more than once.

In all this is a pretty good book. It covers plant growth and development very well. Read it and learn. Buy and give it to a friend for a holiday or birthday.

Lenora Boner
*Master Gardener and Certified Arborist*

Garden Harvest Recipes

Most varieties of citrus are ready to be harvested through January and February. Here are some hints on harvesting your citrus, and what to do with your bumper crops!

**Harvesting**

The time and length of the citrus harvest period will depend on the citrus variety, weather and growing conditions, as well as other factors. As a rule, all varieties of citrus will grow sweeter on the tree even after ripening. Eventually, the fruit will reach a peak of flavor after which it will begin to deteriorate.

**Freezing sections**

Wash and peel fruit. Separate sections. Using a thin-bladed knife, carefully slit the white membrane surrounding each section and lift out fruit (or split the fruit in half across and scoop out sections with a spoon or knife). If left on, the membrane will impart a bitter taste to the fruit. Remove seeds, if necessary. Pack sections into a freezer container in their own juice and freeze, or cover fruit with unsweetened grapefruit juice or water and freeze. A syrup made of 3 c sugar and 1 q water can be used for added sweetness.

For citrus frozen for longer than 6 months, add ½ tsp. powdered crystalline ascorbic acid to each quart of liquid used to cover fruit.

**Freezing juice**

Ream juice, being careful not to press bitter oil from rind. Ice cube trays are convenient for freezing juice - just remove cubes from trays and store in freezer bags. For juice to be frozen for more than 6 months, add ½ tsp. ascorbic acid to each quart prior to freezing. Orange juice may irreversibly separate after thawing due to enzymes.

**Orange Marmalade**

4 c thinly sliced orange peel
4 c orange pulp, cut up
1 c thinly sliced lemon
6 c water

Add water to fruit in saucepan. Heat to simmer and simmer for 5 minutes. Cover and let stand 12 to 18 hours in a cool place. Heat and cook over medium heat until peel is tender (about 1 hour). Measure fruit and liquid - add 1 c sugar to each cup of fruit mixture. Bring slowly to a boil, stirring until sugar dissolves. Cook rapidly to jellying point, about 25 minutes, stirring occasionally. Pour hot marmalade into sterile hot jars, leaving ¼-in. head space. Wipe jar rims and adjust lids. Process 5 minutes in a boiling water bath.

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Citrus Publications

MC8 Recovery of Neglected Citrus Trees
MC17 Irrigation Needs of Citrus
MC65 Quality Citrus Trees
MC87 Low desert Citrus Varieties
Q191 Phytophthora Foot Rot of Citrus
Calendar of Events

JANUARY

1/3 Pruning Demonstration, Encanto Rose Garden, 1809 N 15th Ave. (north of McDowell Rd.), Phoenix Rose Society. Starts at 1 p.m. Miniature roses will be sold. For more info call Paul at 937-5713.

1/3 Sonoran Desert Landscape Plants. The Desert Botanical Garden, 1201 N Galvin Pkwy., has classes on Saturdays that are free with admission, 10 a.m. to noon. For more info, call 941-1225.

1/4 Pruning Demonstration, Dr. Fields office at 45th Ave. and Northern Ave. (SE corner), Rose Society of Glendale, starts at 1 p.m. For more info call 934-9077.

1/9 - 1/11 Maricopa County Home & Garden Show, Veteran’s Memorial Coliseum. Open Fri. & Sat. 10 a.m. to 8 p.m., Sun. 10 a.m. to 6 p.m. Admission $8.

1/13 Valley of the Sun Gardeners meeting at 7:30 p.m. Washington Adult Center Auditorium, 2240 W Citrus Way. Terry Mikel, Extension Agent, will be speaking on Deciduous Fruit. For more info call Paul at 937-5713.

1/17 Pruning Demonstration, Encanto Rose Garden, 1809 N 15th Ave. (north of McDowell Rd.), Phoenix Rose Society, starting at 1 p.m. Miniature roses will be sold. For more info, call Paul at 937-5713.

1/17 Pruning Demonstration, Scottsdale Rose Society. For more info, call 451-6291.

1/17 African Plants in your Desert Yard. The Desert Botanical Garden, 1201 N Galvin Pkwy., has classes on Saturdays that are free with admission, 10 a.m. to noon. For more info, call 941-1225.

1/18 Pruning Demonstration, Valley of the Sun Gardeners, at Paul Lynch residence at 6810 N 7th St., from 1 p.m. to 3 p.m. Peaches, apples, grapes, plums, citrus will be pruned. For more info, call Paul at 937-5713.

2/12 - 2/14 High Desert Gardening and Landscape Conference, Windemere Hotel and Conference in Sierra Vista, AZ. For more info, call Master Gardeners at 520-458-8278, Ext 141.

2/14 Desert Sun African Violet Society Sale and Show, ChrisTown Mall. For more info, call Julie at 863-6742.

2/14 Orchid Show at Berridge Nurseries, 4647 E Camelback Rd., Desert Valley Orchid Society. For more info, call Beverly at 816-4722.

2/14 Raised Bed Gardening. The Desert Botanical Garden, 1201 N Galvin Pkwy., has classes on Saturdays that are free with admission, 10 a.m. to noon. For more info, call 941-1225.

2/21 Bonsai Display at Heritage Square, 6th St. and Monroe St., 10 a.m. to 4:30 p.m, Phoenix Bonsai Society. For more info, call 589-7058.

2/21 Vegetable Gardening. The Desert Botanical Garden, 1201 N Galvin Pkwy., has classes on Saturdays that are free with admission, 10 a.m. to noon. For more info, call 941-1225.

2/21 - 2/22 Bonsai display at Matsuri (Japanese Festival) from 10 a.m. to 4:30 p.m. at Heritage Square, 6th St. and Monroe St. For more info, call Robert at 486-1687.

2/28 Drip Irrigation. The Desert Botanical Garden, 1201 N Galvin Pkwy., has classes on Saturdays that are free with admission, 10 a.m. to noon. For more info, call 941-1225.

COMING ATTRACTIONS

3/14 Garden Club Fair Day, Maricopa County Cooperative Extension office. For more info, see announcement page X.

3/28 Garden Tour by Valley of the Sun Gardeners

The Communicator is Expanding!

Beginning with the March/April issue, we'll be offering more pages with each issue. That means more great articles, and more useful gardening information for the low desert. Effective with the March/April issue, the one year subscription cost will be increased to $15. Thank you for your continued patronage!