



# Pinal County Cooperative Extension Garden & Landscape Newsletter December 2008



## WINTER LANDSCAPING TASKS

If you skipped overseeding your summer Bermudagrass lawn with winter annual rye because of the drought, or because you simply didn't want to mow the lawn anymore, do not just ignore your yard. There is still plenty to do.

Sooner or later, winter weeds will begin popping up to speckle your dormant lawn with green splotches. Not only will they mar the color of the dormant turf but they will also need to be mowed regularly to keep them from growing tall and unsightly. Wasn't mowing one of the reasons to not overseed this year?

Ugly weeds can be completely avoided by applying a pre-emergent herbicide before there is enough moisture in the soil to germinate the weed seeds. Oryzalin is the most common pre-emergent active ingredient sold for homeowner use in our area. Look on the label for the list of active ingredients when you are searching for the right product. Pre-emergent herbicides do not kill any weeds that have already started to grow, so it is important to have the material already in place before the seeds germinate.

When you carefully read the label, you will see that the pre-emergent herbicide must be incorporated for it to be effective. This is usually done by sprinkling the lawn with water to dissolve and leach the chemical into the soil profile. The label will tell you how to do this. It will also tell you how to do other procedures correctly. Make sure you read the label.

Weeds that germinate before you get the pre-emergent herbicide in place can be killed easily if you spray them while they are still tiny with a post-emergent herbicide. These products kill weeds on contact. However, many of the weeds, like lambsquarters, little mallow and prickly lettuce, become very difficult to kill with any product after they have grown much beyond six inches tall. Then just about the only way to control these weeds is by mowing, digging or pulling. With contact burn down sprays, the secret is to apply them early.

During the winter months, it is often a temptation to forget the water and leave the plants to fend for themselves. While it is true that lawns, gardens, fruit trees and other landscape plants need less water during the cooler months, it is important to the health of all plants to have adequate moisture around the roots at all times. Usually a single, deep irrigation once a month is sufficient to meet the needs of plants. Use a soil probe or a shovel to check the soil moisture content before irrigating to avoid wasting water and creating an unhealthy, too-wet environment in the root zone.

The cooler winter months are also a good time to do needed maintenance on your irrigation systems. The plants and your irrigation system do not care what time of year it is, of course, but it is much more comfortable for us to do these chores now, rather than when it is 100 plus degrees outdoors.

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## MICROORGANISMS ARE SILENT PARTNERS

Soil microbes, or microorganisms, are absolutely essential to good soil health and because of this, they play a key role in helping keep garden and landscape plants healthy and productive.

Microorganisms are tiny, one-celled plants and animals that live in the soil. Some of them are parasitic, meaning that they feed on the roots of plants. Others however, the vast majority of soil microbes, are known to be beneficial and play a vitally important function in keeping soil-based systems in good health.

Soil microbes are usually plentiful in the soil. As many as ten billion of these soil microbes can live in an acre of rich farmland. Even in desert lands where undecomposed remains of plant and animals, food for the microbes, are in short supply, there can be large numbers in the soil waiting to do their job.

Microorganisms are part of an intricate system of tiny creatures which recycle vital plant nutrients and maintain the basic soil structure. Without them, the best soils could end up with the productive power and tilth of an asphalt parking lot. With their assistance, even poor soils, with patience and good management, can be reclaimed.

There are three major types of microorganisms. The first group are the bacteria. The bacteria come in many shapes and sizes, but most live and function as single cells. Like most microorganisms, bacteria are tiny; about one million of them can fit on a pinhead-sized platform. What they lack in size, they make up for in activity. They can devour food quickly and reproduce at a dizzying pace.

The actinomycetes are a specific type of fungi that play a key role in the soil. Actinomycetes are slightly larger than bacteria and tend to have many cells. In fact, their branch-like arms give them the appearance of tiny trees under the microscope. The internal heat that makes a good compost pile work is usually due to the efforts of the actinomycetes. They have an amazing ability to survive and function at extremely high soil temperatures. They can also break down some very tough soil materials, such as the shells of insects.

The final group consists of the other types of fungi. Real work horses, they will do more work, on less food, than about any other soil organism. They are great survivors and can tolerate dry soil conditions.

They decompose resistant materials and bind soil particles together with their rope-like filaments. When organic matter is added to desert soils, the fungi will be the workhorses in breaking the material down into its beneficial component parts.

These three groups of microbes make up a major part of the food chain group called primary decomposers. They are responsible for sixty to eighty percent of all chemical reactions in the soil. Along with larger animals, like earthworms, they break down plant and animal residues into forms that can be reused by plants. If it weren't for the microbes, compost and other organic soil amendments like dead leaves and leftover plant residues would end up as no more than sterile, lifeless trash.

Microorganisms improve a soil's ability to absorb water and exchange air with the atmosphere, both key functions. As bacteria work in the soil, some of the products that they secrete act as a cement to hold soil particles, called aggregates, together. This process helps keep the spaces between the individual soil particles, the pore spaces, open for easy entrance of water and air. Other tasks that microbes perform include buffering soil pH, helping make nutrients more available for uptake by the plant and lowering salt concentrations.

Life in the soil is complex and ongoing. Secondary decomposers, such as nematodes, mites, and small insects feed on the primary decomposers and these, in turn, are food for even larger animals. Eventually, the later generations of the tiniest microorganisms will consume the remains of these larger soil inhabitants, and the cycle of life begins again. These cycles play an important role in the various systems that allow life and civilization to exist.

To some extent, these beneficial activities can be managed by one who carefully and thoughtfully provides the necessary raw materials. In our area, it is critical to apply extra supplies of organic materials and make sure that the environment has sufficient water to meet the needs not only of the plants, but also for the microorganisms.

In higher rainfall areas, large numbers of plants will grow naturally providing plenty of leaves, small stems and other organic materials to support the activity of microorganisms. Here in the desert we

## PRUNING DECIDUOUS FRUIT TREES

Proper pruning of deciduous peach, plum, apricot, and apple trees is necessary every year to ensure good fruit production.

Late December, January and early February are the best times to prune deciduous fruit trees because cold weather has forced these trees into their winter rest period. During this time they have lost their leaves and the sap has stopped running in the tissues. Pruning cuts can be safely made without causing stress to the tree.

It is important not to delay pruning. In our desert areas, the length of the winter period is so undependable that it is often difficult to tell exactly when warm weather will force the trees out of their resting period. In general, the best course is to not prune before the leaves have fallen off in the fall or after the buds crack open in the spring.

Whoa, hold on a minute! Stop right there! Why is everyone getting up and running off for the pruning shears? Just because I say that it is almost time to prune, I am not authorizing wholesale slaughter here. Look, I have seen some of your work in the past. You at least need to finish reading this article before you start snipping and cutting! And why are all of you citrus people getting excited? Did I say citrus? Now, all of you sit back and listen up! Wow, we almost had a major melt down there.

Before any of you yank out your pruning shears and start hacking away at your trees, please take a deep breath and think it through. There is a right way and many wrong ways to prune trees, and every tree is different. Pruning is an art as well as a science. If you want fruit, you have to do it in the right way.

Let me also address and, hopefully, put to rest the citrus thing. Citrus trees are not deciduous. They are evergreen, meaning that they never, in good health, lose all of their leaves at the same time. They are a totally different kind of tree, and, as such, they do not need annual pruning to ensure good fruit production. In fact, it is the other way around. Too much pruning can severely reduce citrus fruit production. So, citrus growers, chill out, sit back in your easy chairs and watch your deciduous fruit grower neighbors go to work. Today we are just talking deciduous fruit varieties.

Okay, now, where was I? You people had me scared there for a minute. Let's see. Oh yeah, correct pruning is a science. Done correctly, pruning can bring new life, health and productivity to the deciduous fruit tree. If you have a deciduous fruit tree in your yard, here are a few tips to correctly prune your tree.

First, know the needs of each different variety in your yard and then know the correct pruning system under which each variety does best. The two main systems for pruning fruit trees are the open center system and the modified central leader system. Each has a place where it should be used.

The modified central leader method maintains the natural growth habit of the tree but helps keep the size of the fruit tree under control so that cultural practices and harvesting will not have to be done on tall, gangly trees. It also helps force the tree to produce more fruit earlier in the life of the tree.

Trees are trained to a modified central leader by cutting off the central leader, or the main trunk of the tree, in the first year of growth. A series of new branches will form just below where the trunk has been topped and one of them will usually be the strongest. Prune off all others and allow the new branch to become the new main trunk.

Most new fruit trees will already have had their central leaders cut before they are placed on the market. If not, it is important to do so at planting. As the tree grows, it is simple to maintain the productivity of the tree by thinning out unwanted branches and helping develop the desirable lateral branches that form along the trunk. Apples, pears, and apricots are commonly pruned to the modified central leader system.

The open center method forces the tree into a wider growth habit to allow sunlight to penetrate the interior portion of the tree and to develop strong branches to support a large crop of fruit. Nectarines, peaches, plums and sometimes apricots are pruned to this method. Open centers are made by completely removing the central leader from the tree and allowing the side branches to become dominant.

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## PLANTING BAREROOTED TREES AND SHRUBS

If you are going to plant bareroot fruit trees, shade trees or rosebushes this season, do not wait too long. Once the temperatures start to warm, the bareroot planting season quickly disappears.

Many of our shade trees, fruit trees and roses are sold in the winter without soil around their roots. Deciduous plants, trees and shrubs which tend to shed their leaves during the winter months are particularly well suited to this method of transplanting.

When a nursery receives a shipment of barerooted plants, they are placed in a "healing in" bin or pit which contains sand, sawdust, peat moss or similar material. This soil mixture maintains moisture around the root system and makes it possible to remove plants with ease.

Failure of plants to revive in the spring after transplanting by the barerooted method can be attributed to many factors, but there are some steps that can be taken to minimize plant loss. The following ten simple rules were first assembled more than twenty years ago by the noted horticulturist, Steve Fazio. They bear another look today. Steve was a professor in the Department of Plant Sciences at The University of Arizona until his retirement.

**Rule Number 1. Plant Early.** Plants are received by nurseries shortly after they go into a dormant condition in the growing grounds. They are placed in the "healing in" pits until the buds begin to swell in late spring. They are then placed in containers for future sale at a significantly higher cost. Thus, a great benefit of barerooted plants is cost.

Late in the dormant season, plants start producing fine root hairs. These root hairs play an important role in tree recovery and it is best if this development takes place while the tree is planted in the yard rather than in the pit. Most nurseries now have barerooted plants for sale.

**Rule Number 2. Packaged Plants Require Inspection.** Some barerooted plants, especially roses, are sold in packages. The root system is encased in a water-absorbing material and the tops are exposed. Some garden centers may be careless in checking the packages for moisture and this may result in the death of plants. Dead plants will have shriveled bark or discolored stems. If

packaged plants are purchased shortly after they arrive at stores, danger from lack of root moisture will be lessened.

**Rule Number 3. Protect the Roots.** After purchasing barerooted plants from nurseries, protect the root system from drying while transporting plants home. Even though the plant is dormant, the root system can be damaged by exposing it to drying winds. Place the root system in a container of water or place moist soil around the roots after you arrive home and allow it to remain protected until planted in the selected site.

**Rule Number 4. Be Prepared for Planting.** Always have the tree hole prepared ahead of time so that you can plant the tree or shrub immediately after arriving home. Many failures can be attributed to delays or improper storage. Be sure the soil is wet at planting time and water deeply immediately after planting. It is also a good idea to shovel out a hole that is wider than it is deep. Most of the new roots will grow to the side rather than downward and the loosened soil will facilitate root growth.

**Rule Number 5. Avoid Root Contact with Undecomposed Manure.** Tree holes should be prepared several weeks in advance of planting, especially if manure is being used in the soil mix. Manure and soil should be mixed at a ratio of approximately 6 shovels of soil to 1 shovel of manure. Mix thoroughly before back filling. If there is not sufficient time to allow the manure to decompose, peat moss or similar materials can be used at the same ratio as the manure. Peat moss can be in contact with roots with no danger of root damage. To avoid any possibility of burning with undecomposed manure, fill in around the roots with soil that does not contain manure.

**Rule Number 6. Wait for New Growth Before Fertilizing.** It is best to apply mineral fertilizer when the plants begin to leaf out. When applying fertilizers, be sure to follow package directions carefully to avoid burning tender new roots. Newly-planted trees and shrubs can be injured by over-fertilizing.

**Rule Number 7. Plant Correctly.** Poor recovery of barerooted plants in spring is often related to improper distribution of the root system in the tree

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Before making any cuts, first stand back and evaluate the tree. Try to visualize in your mind what you want the tree to look like when you are finished. Make only as many cuts as you actually need. It is a good idea to stand back frequently to evaluate your progress and to regain your perspective.

On all trees, the first pruning cuts should be made to remove deadwood, watersprouts and suckers that may have started to grow. Suckers are branches that arise from below the bud union at the base of the tree and grow up through the center of the tree. Watersprouts are branches that arise from the limbs but also grow up through the center of the tree. Check for limbs that cross over or branches that are rubbing together as the wind blows. Remove the weakest of these.

Once this preliminary step, has been done, the next step depends upon the type of tree that is being pruned. The following guidelines should be helpful.

For apples and pears, the fruit is born on spurs or small fruiting branches that grow off of the main trunk and branches. Wood must be at least two years old to produce spurs. The bearing trees need little pruning except to thin out the center portion of the tree. All cuts should be made to divert growth towards the outside growing points. With the pear and its upright growth habit, this is an easy procedure to do. Thinning new growth forces the tree to produce new fruiting spurs.

Apricots also produce most of their fruit on spurs. The main problem faced during pruning is to remove branches with old spurs and keep the trees producing good replacement wood. All new growth should be cut back by one-half or more to encourage new growth. This type of pruning thins out unproductive wood and allows light to penetrate to the center of the tree. In return, this forces new spur production. Again, make the pruning cut just above a bud that is facing the outside of the tree.

Peaches and nectarines require a little bit different treatment. These trees do best under an open center system. The fruit is borne on the previous year's growth and new fruiting wood must be produced each year. These fruit trees usually produce large amounts of wood each year so heavy annual pruning is the rule for these trees. Up to eighty percent of the new wood should be removed each year.

Heavy pruning of peaches and nectarines helps thin out the heavy fruit load that could break branches during the coming growing season. The remaining fruit will generally increase in size over unthinned and unpruned trees because of the extra food supplies that will be available to the fruit.

As with other fruit varieties, it is important to always force new peach tree growth outward by making cuts just above an outside bud. While the center of the tree should remain open, it is not advisable to strip the center of the tree of all bearing wood. If all the wood is removed, there will be nothing to protect the tree from sunburn during the growing season. However, it is important to not let a new central trunk to develop in these trees.

Plums do best under an open center system but they do not require the heavy pruning of the peach. Plums bear most of their fruit on spurs that form on wood two years old or older. Plums also tend to produce multiple strong, upright-growing branches that tend to shade each other out. Since top fruit production is dependant upon keeping fruiting spurs healthy, it is important to remove competing branches at their point of attachment so that air and light can reach the spurs.

After the basic structure of the plum tree has been established, it becomes a simple matter to maintain the productivity of the tree by thinning out one third of the previous season's growth and removing the shoots on the interior portion of the tree. When topping branches, be sure to prune to an outside facing bud.

Bearing deciduous fruit trees, like apricot, peach and apple, must be pruned annually to keep them in peak production. Just as important, they must be pruned at the correct time and in the proper way. If you are not completely sure of yourself, take to time to review the basic procedures before you make the first cut.

We have reviewed the basics of pruning deciduous fruit trees and tried to discourage the ambitious excitement of the citrus people who are desperate to cut something back. The proof will be in the next fruit crop. Good luck and good snipping!

## **-MICROORGANISMS,** Continued from Page 2

must constantly add organic matter to the soil for raw material upon which these microbes can work. If we don't, they run out of food. When this happens, they begin to either go dormant or die and the undesirable result is that there is a drastic decrease in their beneficial activity. If times get tough, the microbes will mine even the glue-like material that holds the soil particles together.

Water is just as important for the microbes as it is for plants. A moist, but not saturated, soil environment is ideal. Good water management in garden and landscapes and in compost piles is essential.

Life and death continues every instant beneath the soil. Fortunately for gardeners, farmers, and all mankind, the life and death of soil microbes means that there is a building process that is occurring within the root environment of all plants. Careful management of the soil can increase the chances for garden and landscape plant success.

The winter season is an excellent time to replenish the store of organic matter in the soil. While most landscape and garden plants are at rest during the cooler months, the microflora in the soil can still be quite active working to prepare for the coming growing season. So, even if your flower and garden beds are resting at this time, it is always a good idea to incorporate a little mulch or manure into your soil to keep your silent partners happy.

For all who enjoy working the soil, planting seeds and growing healthy plants, it is important to know, and appreciate, the soil microbes, our silent partners in gardening success.

## **-BAREROOTED TREES,** Continued from Page 4

hole. A mound of soil similar to a pyramid should be formed in the center of the tree hole. This will permit placement of the root system on top of the pyramid. Distribute the roots evenly while back filling.

Rule Number 8. Do Not Bury the Graft Union. Many plants are grafted on appropriate rootstocks and the graft union must be kept above the surface of the soil to prevent soil-borne diseases from gaining entry into the plant through the graft. The area where the rootstock is grafted can be detected by the characteristic bend in the stem. The graft should be 2 or more inches above the soil level when the tree is finally planted.

Rule Number 9. Water Immediately after Planting. Water deeply to settle the soil and remove air spaces. Additional soil may be needed after the initial irrigation. Be careful that the graft union remains above ground.

Rule Number 10. Prune and Select Scaffold Branches. Some deciduous trees and shrubs are sold with the entire top left intact. It is important to reduce top growth by 50% and to select scaffold branches on trees consisting of not less than three nor more than five. Scaffold branches should measure approximately 12 to 18 inches in length after pruning.

Following these simple basic recommendations will give the plants an excellent opportunity to make a rapid recovery in the spring.

### **The Garden & Landscape Short Course Spring Session To Begin In January of 2009 at the following locations:**

**SaddleBrooke** on January 8 - April 2, 2009 from 9:30 am to 12:30 pm. Please contact Hedy Gryszan at 520-818-3899 or [johng61548@wbhsi.net](mailto:johng61548@wbhsi.net) for more information or to sign up for class.

**Apache Junction** at CAC on January 13 - May 13, 2009 from 1:00 pm to 4:00 pm in Room 442. Please contact the C.A.L.L. office at 480-677-7721 for more information or to sign up for class.

**Maricopa** and **Casa Grande** classes to be determined. Please call Theresa at 520-836-5221 for more information.

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Begin your maintenance by checking all sprinkler heads and drip system emitters for leaks and plugs. Broken sprinkler heads waste water. Plugged emitters cannot provide the necessary water to plants when they need it most. Both keep the system from working at peak efficiency.

If you replace a sprinkler head, be sure to replace it with parts with the same brand and type so that the replaced head will deliver the same amount of water in a given time as the other existing heads. Water application efficiency is important to maintaining good plant health and vigor.

Drip emitters can become clogged with salts or sediment and should be cleaned or replaced. As plants grow and mature, they will need more water to support the increased number of leaves. Winter is a good time to move existing emitters out away from the trunk towards the drip line of the plant and to add any needed new emitters to ensure that the entire root zone of the plant is being irrigated.

Staked trees should be carefully checked to see if the tree will stand alone without extra support. Trees with stable trunks should have the stakes removed as soon as possible to avoid injury to the trunk and branches of the tree. If the ties on trees have started to gouge the bark, move the ties to a new location so that the wound can heal. Do not replace the ties too tightly. Allow the tree enough slack so that the trunk moves slightly with the wind. It is through this movement that the tree is able to strengthen itself.

Pruning is another task best done during the winter months when the plants are in a dormant state. Trees and shrubs should have broken, diseased or damaged limbs removed to ensure the continued good health of the plant. Most pruning on landscape trees and shrubs can usually be limited to those branches that rub against each other. Constant rubbing usually leaves both limbs damaged. It is best to remove the weaker of the two branches and to leave the stronger.

Branches of trees that do damage by rubbing against buildings, fences and roofs need to be selectively pruned. However, please, do not just

lop them off. Follow the offending branch back to its point of attachment and remove the entire branch. In this way, you will prevent unsightly stubs and slow-healing wounds.

Any frost damaged leaves and branches of tender plants like bougainvillea or lantana should be left in place until the temperatures begin to warm in the spring. While they may not look their best right now, the extra layer actually serves as a protection for the healthy wood under the canopy. By keeping this extra insulation, you will have a healthier plant next spring.

Finally, the application of a good organic mulch around the base of trees will improve the soil by adding nutrients and slowing the loss of moisture from the soil. Mulches will keep tender roots warmer during the cool winter months and cut down on heat gain during the summer. Do not place the mulch up next to the trunk of the tree or shrub because it can allow soil fungi to get a toehold in the trunk tissue and eventually damage or kill the plant.

There is always lots to do in the yard even though you decide not to plant that winter lawn. By practicing good maintenance year round, many problems can be avoided.

If you have questions, you can reach one of the Master Gardeners Volunteers at the Cooperative Extension office, 820 E. Cottonwood Lane, Building C, in Casa Grande. The telephone is (520) 836-5221 x204. The author's email address is [gibsonrd@ag.arizona.edu](mailto:gibsonrd@ag.arizona.edu)

If you wish to have this newsletter emailed to you, please email Theresa at [tellswor@ag.arizona.edu](mailto:tellswor@ag.arizona.edu) and include *G&L Newsletter* in the subject line. This newsletter is also available to view on our website at: [www.cals.arizona.edu/pinal](http://www.cals.arizona.edu/pinal).

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