

## The Virtual Gardener—Vegetable Garden in a Box

You may have seen advertisements in magazines or on television for self-watering boxes for growing vegetables and other plants. A few years ago I purchased three of these self-watering boxes, and since that time I have successfully grown tomatoes, peppers, chard, and lettuce in them. This month I want to explore how you can build your own self-watering box at a fraction of the cost of the commercially built ones.

The self-watering garden box is more technically referred to as a sub-irrigated planter box. The concept is simple. Basically, each box comprises a lower compartment to hold water, an upper compartment to hold a planting medium for plants to grow in, a partition to separate the water reservoir from the potting soil, and a wick to conduct the water from the reservoir to the growing medium. A tube for adding water to the reservoir, overflow drain holes in the side of the box, and a cover to slow evaporation from the growing medium completes the system.

To use the box, you simply fill the upper compartment with moistened potting soil, add a strip of pelletized fertilizer, cover the soil with a plastic

sheet to slow evaporation from the growing medium, install the plants through openings cut in the plastic sheet, and fill the reservoir with water until it begins to overflow. Once this is done, top off the reservoir every day or two and watch the plants grow.

The box can be used indoors or out—any place that receives enough light for the plants. Cool season crops such as lettuce can be grown outside all winter long. The water in the reservoir retains heat to keep the plants from freezing as well as providing them with moisture. As long as it doesn't get cold enough to freeze the water in the reservoir, cold-tolerant plants should survive a cold snap without a problem.

Depending upon the size of the space you have available for the planter, you can make it out of a 5-gallon bucket or a large plastic tub. Eighteen gallon tubs are a good size. The commercial versions of sub-irrigated planters are about 30 inches long by 14 inches wide by 11 inches deep. Most of the materials to make your own planter can be found around the house or purchased for a small amount of money.

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If you decide to make a planter out of a plastic tub, the tub itself will probably be the most expensive component. In addition to that, all you will need is a short length of 1-inch PVC pipe, five or more tall plastic containers such as cottage cheese or yogurt comes in, and a sheet of plastic or poly tarp to cover the top of the box. In addition you will need a bag of potting soil to serve as a planting medium and a bag of a balanced pelletized fertilizer (not the water soluble powdered type).

The first step in making the planter is to cut out the center portion of the tub lid so that it will fit snugly inside the container. The center portion you cut out will become the partition separating the water reservoir from the soil compartment. After you have cut out the center, drill a number of small (1/4 inch) holes in it.

The next step will be to place one of the plastic containers in the center of the flat partition and trace around it with a marking pen. Once this is done, use a box knife or other sharp instrument to cut out a square inside the circle. This is the opening that will allow the water to wick up from the water reservoir into the planting medium. Then cut one corner off the sheet, to create an opening just big enough for the PVC pipe to fit through.

Drill a number of quarter-inch holes in the bottom and around the sides of one of the plastic containers. This container will be stuffed with the planting medium and will sit in the water in the reservoir. Water from the reservoir will be absorbed by the planting medium in the container and wicked up into the upper chamber holding the rest of the planting medium.

Place the plastic container with the holes in the bottom of the tub

with its open top facing upwards and place the other plastic containers around it. The plastic partition sheet will sit on top of and be supported by these containers. Place the plastic sheet on top of the containers and align the container with the holes so it is directly below the hole you previously cut in the center of the sheet. Drill several 1/4 inch holes in the side of the tub just below the level of the partition. These will be the overflow holes to prevent over watering your planter. Put the PVC pipe in the opening you cut out of the corner of the sheet.

Fill the top compartment with pre-moistened planting medium, making sure to also fill the plastic container below the cut-out with the medium. Place a strip of one to two cups of fertilizer in a furrow along one side of the container and cover the top of the tub with the plastic sheet or tarp and secure the sheet in place with a string.

You are now ready to plant. Cut X-shapes into the plastic cover sheet and install your plants into the planting medium. Fill the water reservoir through the PVC filler tube until water runs out through the overflow hole. Add water to the reservoir every day or two.

A picture is worth a thousand words and you can find lots of pictures (even videos) and further instructions on the Web that show how to construct sub-irrigated planters. To find them, do a Google search on self-watering planters or check out the following sites:

How to make a self-watering bucket planter

<http://www.youtube.com/watch?v=IO2HRf5Uyck>

Build your own earth box using two plastic tubs

<http://www.instructables.com/id/Building-your-own-Earth-Box/>

How to build your own earth boxes

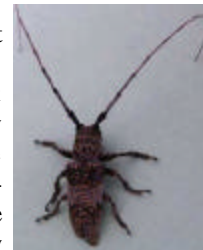
[http://www.ehow.com/how\\_5343\\_917\\_build-own-earth-box.html](http://www.ehow.com/how_5343_917_build-own-earth-box.html) and <http://www.green-trust.org/freebooks/Earthbox.pdf>

Until next time, happy surfing.

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## What Is This?

No, they are not terrorists, marauders or a rival gang. But they strike viciously all the same. You've seen them in September when the nights turn nippy and there is otherwise a feeling of tranquility in the air after the fresh summer rains. Everything looks brilliant and green. Except the mesquites, that is. Why are some of the branches turning brown so early?



Then you notice odd strangulation incisions that encircle the ends of the smaller branches. So precise and deadly. What did that? *They* did it. You've just been attacked by the mesquite girdlers.

### Control

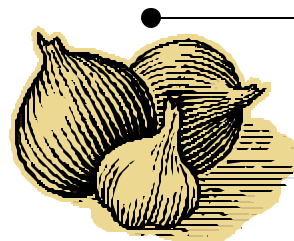
The best method of controlling girdlers is to cut off and burn the girdled branches every autumn or winter. Where burning is not allowed, the branches should be disposed of at a public waste transfer station, where the branches will then be ground up. The objective is to remove and destroy the eggs and the larva, which occasionally remain in dead branches for up to three years.

Bret Galloway, Master Gardener  
Excerpts from March & April 2009  
Master Gardener Newsletter

*Robert E. Call*

Robert E. Call  
Area Horticulture Agent

Carolyn Gruenhagen  
Editor



## Garlic—It's Time To Grow the Stinking Rose

Garlic tastes good AND keeps vampires away—I know this for sure because we've not seen a single vampire since we started growing garlic. Garlic is easy to grow and is reputed to have numerous health benefits, among them are antimicrobial properties and beneficial effects on cholesterol levels and blood pressure. The perfect time to plant garlic is around the time of the first frost—right about now! Spring planted garlic does not produce as well as fall planted garlic.

There are two main varieties of garlic, hardneck (aka stiffneck) and softneck. Elephant garlic, sometimes thought of as a third variety, is really more closely related to the leek family. Each variety has several sub-varieties, or types.

Hardneck garlic generally has fewer and larger cloves, perhaps five to twelve, that are arranged in a single row around a stiff flower stalk, known as a scape. Softneck garlic features more and smaller cloves, sometimes twenty or more, generally arranged in two or more rows around a stalkless center. Softneck varieties typically store somewhat longer than hardneck varieties, although both will store for several months if handled gently so as not to bruise the cloves. The garlic I've grown lasts far longer than store bought and I attribute this to careful handling. Softneck varieties are supposedly better for warmer climates such as ours, but I've grown hardneck varieties and done well with them here. I generally prefer hardneck because its larger cloves are easier to peel.

Buy whole garlic bulbs from a reliable source, any of the major vegetable seed companies are

good places (most have online catalogs and ordering), and don't separate them into individual cloves until it's time to plant. I have known folks who buy supermarket garlic to plant, but it's not a generally recommended practice. Plant in well drained, loose soil amended with compost or other well-rotted organic matter such as manure. Place the cloves "pointy-end up" (just like a rocket!) about two inches deep and six inches apart. Don't remove the "paper," which is really just a dried leaf, from around the clove. Mulch the surface of the planting bed with four to six inches of straw or other loose mulching material. Mulching protects the buried cloves from hard freezes and minimizes weeds. Garlic has shallow roots and does not compete well with weeds. Water deeply and infrequently and garlic shoots will be visible in a few weeks. They will easily tolerate freezes typical of most of our area.

After the garlic has produced its leaves, which will eventually be a couple of feet tall, it may produce a long, curly scape, which looks like a round stem in the middle of the flat leaves. Most sources recommend removing the scape to yield bigger bulbs. The scapes are certainly tasty and can be eaten in soups, stir fries, and such. Others claim that the garlic will store better if the scapes are left on, so suit yourself.

Fertilize once or twice in the spring if the plants show symptoms of nutritional deficiency, such as yellow leaves or lack of vigor, but don't fertilize later than April and cease watering once the leaves start to brown. Garlic suffers from few pests and diseases, but be sure to rotate your garlic plot every season, planting in the same spot only once

every three or four years to minimize chances of soil dwelling nasties attacking your crop.

It's harvest time when about half of the leaves have turned brown and dry, generally in late May or early June in Cochise County. If you harvest too early, the bulbs will be underdeveloped; harvest too late and the bulbs will separate in the ground. Check a bulb or two to see how your garlic looks before harvesting the entire crop. Dig the garlic carefully with a shovel or fork; don't just yank it from the ground as the plant isn't strong enough and you will damage the bulb. Hang the entire plant in a shaded, dry place for three or four weeks to cure. We use a small shed and hang the plants in loosely bound bunches from ceiling hooks. Once cured, gently brush any remaining dirt from the bulbs and cut off the tops and roots. Store the cleaned bulbs in a dry, dark place in mesh bags. Save the biggest and best bulbs for planting the next fall and soon you'll have your "own" garlic variety that's well adapted to your garden conditions.

Additional information can be found in your local library or on the Internet. A few good Internet sources I've looked at are:

<http://www.extension.umn.edu/distribution/cropssystem/DC7317.html>

[http://www.seedsavers.org/garlic\\_guide.htm](http://www.seedsavers.org/garlic_guide.htm)

<http://www.gourmetgarlicgarde.com/>

<http://www.filareefarm.com/>

*Bill Schulze  
Master Gardener Associate*

## In a Desert Garden

### Pony foot – *Dichondra*

*Dichondra micrantha* somehow arrived in my yard as many plants have. Did the birds bring it in? Or the wind? Who knows.

This plant forms a beautiful compact groundcover with its small lily pad-like leaves. Every year it has taken over another part of my yard, being visible mostly in the rainy season as it grows where it doesn't get any irrigation in the off-season. Even this year with the lack of rain it has been showing up. Now it has taken over the little patio I created with flagstones under gazebo. It creeps between the pavers and gives it such a lovely soft look like a woven carpet beneath the table and the four chairs.

I remember Joyce Gay, a former member of the Garden Club and the first member to write the articles for the *Sierra Vista Herald*, had the plant in her court yard instead of a lawn. It was so pretty. I have decided to cultivate the plant in the patio area and have been giving it a little water every time I have to wash off the table. This way I will keep it growing and filling in the cracks. It will not need much water, the roots are not deep, and the shade and gravel there will keep it moist. In the other places where it doesn't receive any additional irrigation it will linger on for awhile and than go dormant until the next rain. *Dichondra* creeps low in the



ground and spreads by surface runners. In a different climate with more water it can grow several inches high and will have to be mowed to keep it low.

I came across a species, *D. argenta*, 'Silver Pony foot.' This plant is lovely but has different requirements. It likes full sun and a rather dry location. The leaves are not green but because they have gray hairs, the plant looks silvery. This plant needs excellent drainage which is a problem in my heavy clay soil. It is native to New Mexico, Texas, Mexico, and Southeastern Arizona. It is cold hardy to 20 degrees. This plant also makes a fine groundcover and as it contours its surroundings it could be grown to imitate a bench. I have planted it at my little elevated pond in my rose garden that is surrounded by blocks of pavers. It has started to contour these and looks stunning. This plant is also an excellent choice for hanging baskets as it doesn't mind to dry out.

*Angel Rutherford, Master Gardener*



## Cuttings 'N' Clippings

✧ The next CCMGA meeting is 5:00 p.m. Thursday, **November 5** at the University of Arizona South Campus Public Meeting Room. Alan Blixt will give a slide presentation about the San Pedro River Habitat focusing on its native and non-native plants and grasses. He will also discuss the birds and other animals who rely on the river for habitat

✧ **November 7**, 9-11:30 a.m. *Septic Care* is the next FREE Water Wise presentation held in the Public Meeting Room at the University of Arizona South Campus. Thinking that you've never needed to pump your septic system doesn't mean that is a good thing. Septic systems need regular maintenance. How they work and how to maintain them will be discussed at this workshop by Dr. Kitt Farrell-Poe, UA Water Quality Specialist.

## November Reminders

- ◆ A good time to install a drip system
- ◆ Replace summer mulch with fresh
- ◆ Start a winter herb garden
- ◆ Protect plants from frost (Call the Extension Office for a copy of the bulletin *Frost and Frost Protection*)



## The Agent's Observations

**Q** I have Chinese elm trees that have been infested with elm leaf beetle larvae and mulberry trees that have had the mulberry tussock moth larva on them. What can I do to get rid of them now?

**A** The leaves of these deciduous trees will be falling soon. These insects have or will soon begin to overwinter. There is no reason to try and control them now. These insects will reappear next spring and that is the time to control them. Let the leaves fall and put them in your compost pile. Wait until next spring to apply control measures.

**Q** When should I prune my fruit trees and roses?



**A** Pruning of fruit trees should be done when trees are dormant, after rest is completed in the winter. Rest is a physiological stage where tree

buds cannot be forced to grow even under ideal growing conditions. Generally, rest requirements are completed after Christmas. Pruning can be started in January and continue through bloom in the spring. However, dead or diseased limbs and root sucker growth can be removed at anytime.

Roses that bloom several times during the year should be dormant pruned in the late winter or early spring before new growth begins. Roses that bloom only once during the year are pruned after blooming in late spring or summer.

**Q** There are small, sunken, brown spots on the 'Golden Delicious' apples I picked. When I cut in these spots the tissue is brown and corky down into the flesh perhaps a quarter of an inch. What pest causes this problem? How can it be controlled?

**A** The problem you are seeing is called "bitter pit." This is not caused by a pest but rather a deficiency of calcium, causing cell walls to not form properly. Bitter pit is increased by nutrient imbalances, hot weather conditions and orchard practices. The tendency for bitter pit to occur increases as the ratio of potassium

and magnesium to calcium increases. Other factors include excessive tree vigor, light crop load, or excessive thinning.

**Control:** Bitter pit can be decreased by minimizing or avoiding excessive tree vigor. This may be caused by over fertilization, over pruning, harvesting only mature fruit, regular watering, and maintaining a proper fruit load. Foliar sprays of calcium can reduce bitter pit in fruit when applied before harvest. Bitter pit can appear while the apples are still on the tree or during storage. Cool the fruit rapidly after harvest. Storage at low temperature and in high relative humidity conditions can also reduce the development of this disorder in stored fruit. The fruit is still good to eat but the bitter pit areas may impart a slight bitter taste.

**Source:** *Compendium of Apple and Pear Diseases*. 1991. A.L. Jones and H.S. Aldwinckle; Editors. APS Press, St. Paul, MN. Page 89.

*Robert E. Call*  
Area Horticulture Agent

**"Gardeners  
know the best  
dirt!"**

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## Journal Notes of Ron Cluff, Former Extension Agent, Graham County Cooperative Extension

### When to Harvest Pecans

A question that is asked quite frequently as we go into the late fall and early winter by individuals who have pecan trees is, "When are pecan nuts ready to harvest?" Actually, this is a good question, especially from new people who have recently moved into the area and have had no previous experience with pecans. If the pecans are harvested and eaten too early, they can give you an upset stomach, much the same as eating green fruit. Maturity of a pecan nut is indicated when the husks lose their bright green color, turn brown and begin to split open at the sutures. Usually this will occur during the later part of October and into November.

Frost will speed up this process. If killing frosts occur late in the fall, harvest will be delayed. As soon as the husks are open, the nuts can be knocked from limbs or a mechanical harvester can be hired to shake the nuts from the tree. Some people leave the nuts on the tree to fall naturally. Nuts that do not fall usually do not have nut meats inside the shell. They are known as "stick tights," because the husks do not open and separate from the nuts. Many times this happens because of improper pollination in the spring. Pecans are wind pollinated.

### Freezing Pecans for Storage

Homeowners who have pecan trees are in the processes of harvesting the pecan nuts during the fall and winter months. If you have several large trees this can be a big job that is hard on your back as you stoop to pick up the pecans. There are simple devices that are harvest aids to assist in getting the nuts off

of the ground without bending over. (Search the internet for these devices.) After the nuts are gathered, usually they are placed in a garage or storage shed and used through the year. The nuts will not keep well under these conditions. As weather gets hot the pecan nuts and meats will become rancid, because of their high oil content, and will not taste good.

An excellent way to store the pecans, keep them fresh, and good to eat is to crack the nuts, take the meat out of the shell and place them in containers or plastic bags in the freezer. By doing this the nut meats will keep well. Color is maintained and the flavor is almost as good as freshly harvested pecans. Whole unshelled pecans can also be frozen, but they take up much more space in your freezer. It is also wise to store purchased pecans in the freezer to maintain their quality.