

Yavapai Gardens

Master Gardener Newsletter

October 2010



No Meeting this month, attend the MG Recognition Picnic instead. Oct 16

Alta Vista Gardening Club, Prescott, fourth Tuesday of the month, 12:30pm. Call 928-443-0464 for location and information.

Prescott Area Gourd Society, third Tuesday of the month, 6:30 pm, at the Smoki Museum.

Prescott Orchid Society, meets 3rd Sunday of the month, 2pm at the Prescott Library, call Cynthia for information. (928) 717-0623

Prescott Area Iris Society call 928-445-8132 for date and place information.

Verde Valley Iris Society call Linda Smith at 928-567-7470 Rhizome Sale, Labor day, 9am, Mt Hope in Cottonwood.

Check out the new MG blog. More garden information, events and pictures.

<http://yavapaigardener.blogspot.com>

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Propagation from Cuttings and Divisions by Nora Graf



One of the easiest ways to make more plants is by divisions. The simplest way to describe divisions is that you are cutting the plant & roots into pieces. There are some things to consider before you go crazy and start digging up plants. Use these as guidelines and figure out what works best for your garden and your plants.

When to divide is always the question. It's best to divide the plants when they look happy and healthy but perhaps with some signs they are getting too big or maybe the leaves are smaller than usual and the bloom stalks are weaker looking or simply before it gets so big that it overruns other plants or its allotted growing area.

Divide when the weather is cool, although you can do it any time of year. It's just that dividing in July in Arizona may not be conducive to the plant surviving. (This suggestion does not include cactus!) It's hard to keep newly stressed plants happy in the heat of the summer. Really the best time is either fall or spring when the weather is cool. Fall divisions allow the plant time to start new root growth before it goes into dormancy. For plants that you want to include in the Monsoon Madness Sale this is the best time! The roots will start developing even as the leaves are ending their season. In spring the plant will be ready to take off. Dividing in spring works fine also, although by July you will probably have a smaller plant.

Start your digging at the edge of the root zone, the drip line. This will help minimize damage to the roots. Dig a trench around the roots and then dig under until you can lift the plant out. Plants increase by several methods. Some form offsets that are easy to see and divide. Some multiply by surface or close to the surface roots. Cut the roots so that there are active roots. Tap-rooted plants can be divided by slicing down the length of the root. Look for an eye (where a new stem will develop.) Each division should have a piece of the taproot, an eye and a few side roots. Some plants send out runners. They might be stems or roots. If you suddenly find something coming up in an unexpected area, it might be from a runner. If the runner has enough roots to support the plant, simply cut it and now you have a new plant that can be moved. Some woody plants can be divided by creating stem cuttings. If a stem is buried in the ground, roots may develop and after awhile you can cut the

stem free from the main plant. (Blackberries and raspberries do this.) For all of these different types of divisions the key is to make sure you have a healthy root system to start with.

Once you have the root ball out, cut it into sections. Take the best looking sections to re-pot. There should be several stems and the roots, should look healthy. Check for disease or damage. There is no point in trying to re-pot a segment that shows any signs of either.

Pot up the divisions in a good potting soil, hopefully with some compost added in. This will give the roots a great environment for new growth. (While I am talking about getting plants ready for Monsoon Madness, you can apply this information to re-planting in the ground also.)

Once the divisions have been potted it's important to keep the plant moist and preferably in a humid area. Put them in a shady spot out of the wind. With a disturbed root system the plants will find it hard to maintain growth in very dry conditions.

Some plants are picky about the timing and technique of dividing. If you haven't been having good luck with your divisions, do some research and see if your timing or technique is wrong—and some plants simply don't like to be divided. One place to start is at: <http://www.finegardening.com/how-to/articles/dividing-perennials.aspx>

They have a list of plants that might be a starting point, but certainly search for the specific plant you are trying to grow and while I know it is sometimes difficult to find anything, try to find information specific to Arizona.

Cuttings

Most plants can be started from cuttings. For some it's a simple task of cutting some sprouts, popping them in water and soon there are roots. Others are fussier. There are stem cuttings, leaf cuttings and root cuttings and some plants do better with one or the other.

Stem cuttings are usually taken from a section of new growth. It's best to do the cutting in the early morning. Look for a healthy piece. Make your final cut below a leaf joint and cut off any leaves attached at that point. You will need to have approximately an inch of clean stem. Pop them in water and wait for the magic.

The timing of cuttings varies with the species. To find the best timing look up information about the plant. Generally it's best when the plant is actively growing but it can be complicated so do some research.

Most plant cuttings will need to be potted in a potting soil mixture. Remove the bottom leaves as before, leaving only one or two leaves at the top. While the leaves provide the elements necessary for plant growth they also allow water to leave the plant. Drying out is a serious threat to good growth; in fact it's usually deadly. You need to remove enough leaves to reduce transpiration but leave enough for good photosynthesis. If the plant has large leaves, cutting off half a leaf will maintain some photosynthetic capabilities while reducing water loss. Once your potting mixture is in the container, (compost is always a good addition to any potting mixture) take a stick or something similar to make a hole in the potting mixture that is slightly larger than your stems. Place the stems in and press the mixture firmly around each piece.



Here's the key: It's all about moisture at this point. You have a plant without roots and no way to get water from the soil. Put some sort of plastic cover over the plant. Keep it out of direct sunlight. You want to create a humidity chamber. You want the soil moist but not sopping wet. You want moisture in your chamber but not rain. If the soil is too wet, open your chamber slightly to reduce the moisture but do not open it up completely and walk away for a couple of

hours. You might come back to wilted sticks. Be watchful and, if you have the correct conditions, in a few weeks (4 to 6 weeks, depending on the plant) new roots should start to form.

There is a simple way to test for new roots after giving them ample time to develop, but don't be doing this every few days. Tug gently (gently!!!!) on the cutting. If it has new roots you will feel resistance; it won't come loose from the soil. No resistance, new roots have not formed.

Once roots have formed you can start potting the plant to larger containers as needed.

Cuttings can be complicated, more basic information can be found at: <http://www.letsogardening.co.uk/Information/Cuttings.htm>

There are products available that are rooting hormones. These encourage the stems to produce roots. They come in a number of formulations that include powders, gels and liquids. You used to be able to find them easily in nurseries but as our nurseries have become big boxes I really haven't seen the stuff too often.

If you have a willow tree you might try making your own rooting hormone. Take the yellow tipped shoots and soak them in water for 24 hours. To speed that up you can boil willow branches in water. Then use the solution on

your cuttings.

You can get a basic knowledge of rooting hormones at:

http://www.maximumyield.com/article_sh_db.php?articleID=619&yearVar=2010&issueVar=September&featureVar=true

Another propagation resource is:

<http://www.ces.ncsu.edu/depts/hil/hil-8700.html>

Plant Propagation by Leaf, Cane, and Root Cuttings: Instructions for the Home Gardener

Many plants can be propagated by leaf cuttings or root cuttings. They aren't treated differently than stem cuttings except for making a neat cut at the base of the leaf

vs. the stem. Root cuttings are just a section of the root. With all cuttings you need to know which end is up! The method I learned was that the root end would be cut at a slant while the stem end is cut straight. That way you can always tell which way to plant the cutting. If you plant them upside down, it won't work.

Propagation is not a one-size-fits-all kind of procedure. Each plant has its own requirements. The Internet is a great place to research what works best for what plant. If you don't have access to the internet there are a number of good books available.

Making More Plants: The Science, Art, and Joy of Propagation, by Ken Druse

The Complete Book of Plant Propagation by Clive Innes, Jim Arbury, Mike Hanour, Mike Salmon, Richard Bird (This a real scholarly book, believe it's used as a textbook.)
Plant Propagation, Principle and Practices by Hudson T. Hartmann

Another professional book is: The Reference Manual of Woody Plant Propagation by Michael A. Dirr and Charles W. Heuser, Jr.



Rose Cuttings

This is an article that I printed in 1996 but with all this talk about propagation I thought it might be a good time to re-print it.

Originally excerpted from the Austin Rose Journal, Kevin Gaies, editor.

October is a good time for starting roses from cuttings. It is a simple process if you pay attention to four keys:

1. Select a cane with a bloom that is fully open or "spent." You need three eyes—these are the triangular swellings that emerge from the base of each leaf set. The eyes are where the next set of shoots will emerge. Make sure that shoots have not emerged from the eyes. If shoots have

started to emerge from the cutting, failure is likely.

2. Select three eyes on the cane, preferably each at the base of a five-leaf leaf set. This generally means starting about two to three leaf sets down from the bloom. Cut the cane 1/8 to 1/4 inch below what will be the bottom eye of the cutting and cut the bloom off 1/8 to 1/4 inch above what will be the top eye of the cutting. Gently remove the leaf set from the lowest eye by grasping one or two of the leaves and pulling downward. Dip the bottom of the cutting in Rootone or a similar product and then gently blow off the excess powder. This is important—you only need a little dusting on the cutting for success. Too much rooting compound dooms the cutting. Some folks have good success without using a rooting compound. You can scarify the lower part of the cutting to speed up rooting, but this is tricky—ask a consulting Rosarian to demonstrate it for you, then you can do it on your own.

3. Use a high-quality potting soil or your own secret mix for the soil medium. The requirement is that the soil should drain well—holding moisture but not staying wet. Use a 3 to 4 inch plastic pot—one with drain holes. Fill the pot with soil to within about 1/2 to 3/4 inches of the top. Use a pencil to poke a hole in the soil for the cutting. Place the cutting in the hole so that the lowest eye is below the surface of the soil. GENTLY firm the soil around the cutting. Place a jar over the cutting, inside the pot rim, so that you create a mini-greenhouse. Some folks use opaque plastic milk jugs or plastic soda bottles with the bottom cut out, but with the caps left on. Some use pint or quart jars.

4. Place your cutting assembly in an area that gets good light but no direct sunlight. Direct sunlight will quickly kill the cutting. Some folks put their cuttings under big pecan trees, some put them right in the bed under mature rose bushes. Just find a suitable spot. It may take a few days of observing the spot during the course of the day to make sure it has the right light.

5. That's all there is to it! If you follow these steps, you should have good success—probably in the 75% range. From here on it is pretty easy. Check the cutting from time to time and make sure that the soil stays moist. After about three weeks, shoots will emerge from the two aboveground eyes. Once the leaf sets have developed, you can remove the jar or jug from the cutting at night or during cloudy days for a few hours at a time to help harden off the cutting. The folks who use the plastic milk jugs or soda bottles remove the caps to accomplish this.

After a week or so of this process and the cutting is able to handle life without its greenhouse, you can transplant it to a larger pot or directly into the garden. Since we are talking fall cuttings, I prefer to transplant to a larger pot so I can move it into the garage when a frost comes. It just may survive the winter, but me, I'm paranoid. I don't want to lose the little thing.



One note of caution here. Roses that have been patented have a patent good for up to twenty years. The law states that it is illegal to asexually reproduce a patented plant. Making cuttings is asexual reproduction. After the patent expires, anyone can asexually reproduce the rose without penalty. The law was made to protect the hybridizers and licensed growers from unscrupulous growers who would profit without paying royalties. I'm positive that the "patent police" are not going to show up at your doorstep just because you have a few cuttings in your backyard, but please use common sense on patented varieties.

(Editors note: For our Monsoon Madness sale it would be best not to be selling patented varieties you have started from cuttings)

Garden Tip

From Gary A. Gruenhagen, Master Gardener
From the December 2008 Cochise County Master Gardener Newsletter, "High on the Desert"



Empty 2-liter soda bottles can be a gardener's best friend. With a minimum amount of work they can be transformed into all sorts of useful garden implements. This week as I was pulling stickers out of my fingers and massaging an aching back after a day of weeding around my ornamentals, I came up with yet another use. I would have liked to use an herbicide in the planting beds but was afraid of inadvertently spraying my ornamentals as well as the weeds, and some of the herbicides can be deadly in even tiny amounts. What to do? An empty 2-liter soda bottle was the answer to the problem.

Here's how to use it:

1. Cut the bottom off the bottle with a sharp knife. (A razor blade, box cutter, or Xacto knife work well; just be careful!).
2. Obtain a small hand-pumped spray bottle of the kind frequently sold in garden shops, remove the screw-on spray nozzle, and measure the diameter of the threaded portion that it attaches to. (Mine was $\frac{1}{2}$ inch.)
3. Remove the cap from the soda bottle and drill a hole of the same diameter in the center of the cap.
4. Slip the cap (threaded side out) over the threaded portion of the sprayer and reattach the sprayer nozzle to the bottle.
5. Screw the soda bottle onto its cap to create a spray shield around the sprayer nozzle. You can now place the spray shield around a weed and dowse it with herbicide without worrying about spray drifting onto your ornamentals.



Meet a Master Gardener

Eric Downing, Vice President of your Master Gardener Association.

By Angie Mazella

Eric hales from the rural community of Plainfield, Indiana, just a few miles outside of Indianapolis.

He remembers spending summers working in a garden that covered about 1/4 acre. He and his brothers each had their own little garden, about five feet square, that they could call their own. They grew vegetables and fruit (some of the best sweet corn and strawberries in the world!!!) and his mom would spend late summer and early fall canning what they grew and it would feed the family well into the next spring. Just before his tenth birthday, his family moved to Phoenix. The new climate and new job pressures on his parents put an end to the Downing garden altogether.

Eric studied architectural drafting at Phoenix Institute of Technology and worked for several architects and engineers in the Phoenix area, including one firm that had a Landscape Architecture Department, where he spent many months with landscape architects and learned many things about the field. Here was an opportunity to



combine his love for gardening with his chosen profession.

In the early 1990's when things slowed down in the architectural field, Eric embarked on a new career. He enrolled at Western New Mexico University and earned a B.S. in elementary education. However, after teaching for a couple of years, he decided education was not his true calling.

Then in 1999 he came to the Prescott area to help his parents. He had a garden again for about five years in Prescott Valley. He was now back to the vocation he loved: planting vegetables, trees and flowers.

He wanted to take the Master Gardening program several years before he was able to fit it into his working schedule. Finally when he could balance his job and the gardening courses he wanted to take, he became a Master Gardener. He graduated with the 2009 class.

As a master gardener, Eric has worked at the VA, but dedicated the majority of his hours at Sharlot Hall Museum. He also worked at the Yavapai County Fair. He is looking forward to continuing his work on the Executive Board of the MGA.

More Gardening Tips

Trench Gardening

This tip came from the magazine Kitchen Gardener that is unfortunately no longer being published. Even though the writer was from Ontario, Canada this is a tip that can be used here in Arizona.

Carve 8-inch wide trenches in the soil 8-10 inches deep and plant your seeds or plants in the bottom of the trench. Rain and morning dew (not that we have much of that in Arizona in the summer) fill the trench keeping the soil moist. In Arizona the trenches help protect young plants from the effects of our drying winds. Native American gardens did not have our traditional hill and furrow pattern, they planted things in beds that were below grade. This provided a place for rain to collect and not run off.

Faucet Drains

Do you have a muddy mess underneath your faucet? In our clay soils water can create a mucky, sticky ugly space in the garden. To get rid of the mess, dig a hole that is 8 to 10 inches deep underneath the faucet. Size is yours to choose but anything at least 18 inches square should work. Put two inches of ¾ inch aggregate gravel in the bottom. Pack it down. Fill 6-inch terracotta pots with pea gravel. Place them upside down on the aggregate. Fill the pots to the top with pea gravel by pouring it through the hole in the bottom. Fill in the area around the pots to ground level with pea gravel and tamp it down. The bottoms of the pots should be at soil level. It makes your faucet area more attractive and helps keep the area dry.

Science News

Modified Crops Reveal Hidden Cost Of Resistance

from ScienceDaily (Oct. 29, 2009)

Genetically modified squash plants that are resistant to a debilitating viral disease become more vulnerable to a fatal bacterial infection, according to biologists.

"Cultivated squash is susceptible to a variety of viral diseases and that is a major problem for farmers," said Andrew Stephenson, Penn State professor of biology. "Infected plants grow more slowly and their fruit becomes misshapen."

In the mid-1990s, the U.S. Department of Agriculture approved genetically modified squash, which are resistant to three of the most important viral diseases in cultivated squash. However, while disease-resistant crops have been a boon to commercial farmers, ecologists worry there might be certain hidden costs associated with the modified crops.

"There is concern in the ecological community that, when the transgenes that confer resistance to these viral diseases escape into wild populations, they will (change) those plants," said Stephenson, whose team's findings appear on October 26 in the Proceedings of the National Academy of Sciences. "That could impact the biodiversity of plant communities where wild squash are native."

Stephenson and his colleagues James A. Winsor, professor of biology; Matthew J. Ferrari, research associate; and Miruna A. Sasu, doctoral student, all at Penn State; and Daolin Du, visiting professor, Jiangsu University, China, crossed the genetically modified squash into wild squash native to the southwestern United States and examined the resulting flower and fruit production.

Unlike a lab experiment, the researchers tried to mimic a real world setting during their three-year study.

The researchers then looked at the effects of the virus-resistant transgenes on prevalence of the three viral diseases, herbivory by cucumber beetles, as well as the occurrence of bacterial wilt disease that is spread by the cucumber beetles.

"When the cucumber beetles start to feed on infected plants they pick up the bacteria through their digestive system," explained Sasu. "This feeding creates open wounds on the leaves and when the bugs' feces falls on these open wounds, the bacteria find their way into the

plumbing of the plant."

The researchers discovered that as the viral infection swept the fields containing both genetically modified and wild crops, the damage from cucumber beetles is greater on the genetically modified plants. The modified plants are therefore more susceptible to the fatal bacterial wilt disease.

"Plants that do not have the virus-resistant transgene get the viral disease," explained Stephenson, whose team's work is funded by the National Science Foundation. "However, since cucumber beetles prefer to feed on healthy plants rather than viral infected plants, the beetles become increasingly concentrated on the healthy -- mostly transgenic -- plants."

During a viral epidemic, the transgene provides modified plants with a fitness advantage over the wild plants. But when both the bacterial

and viral pathogens are present, the beetles tend to avoid the smaller viral infected plants and concentrate on the healthy transgenic plants. This exposes those plants to the bacterial wilt disease against which they have no defense.

"Wild and transgenic plants had the same amount of damage from beetles before viral diseases were prevalent in our fields," said Stephenson. "Once the virus infected the wild plants, the transgenic plants had significantly greater damage from the beetles."

Results from the study show that over the course of three years, the prevalence of bacterial wilt disease was significantly greater on transgenic plants than on non-transgenic plants.

According to the researchers, their findings suggest that the fitness advantage enjoyed by virus-resistant plants comes at a price. Once the virus infects susceptible plants, cucumber beetles find the genetically modified plants a better source for food and mating.

"Our study has sought to uncover the ecological cost that might be associated with modified plants growing in the full community of organisms, including other insects and other diseases," said Ferrari. "We have shown that while genetic engineering has provided a solution to the problem of viral diseases, there are also these unintended consequences in terms of additional susceptibility to other diseases."



MG News

Recognition Picnic - October 16th

If you plan to attend the picnic at Montezuma Well and haven't contacted Kathy MacCauley, please do so by Oct 6th. prescottgirl@qwest.net, 443-8934

2011 MGA Officers

The By-laws revision to replace the Vice President position with a President-elect position beginning with the 2011 election was approved. Election of 2011 MGA officers will be held at the November MGA meeting. If you would like to self-nominate for President, President-elect, Secretary, or Treasurer, please contact Cathy Michener, caasam@cableone.net, 541-9341



FROM THE EDITOR: Please send or email articles and announcements to the address below. All articles must be in my hands by the 10th of the month. Short announcements (no more than 2 or 3 lines) will be accepted until the 25th.

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A handwritten signature in black ink, appearing to read "Jeff Schalau", with a long horizontal line extending to the right.

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MGNEWSLETTER

*October 16, Recognition Picnic,
Montezuma Well
See page 7 for information*