I am pleased to announce that some of our very own Pinal County Master Gardeners are now featured speakers at the Boyce Thompson Arboretum.

Master Gardener volunteers are really special in that they are willing to donate their time and experience to help others learn how to grow successful gardens and landscapes. They do all kinds of things to make this happen, including staffing booths at events, organizing seminars and workshops, growing demonstration gardens, and many other tasks. Now, they are being invited to present seminars and workshops. I could not be more proud.

Some of you may have heard about the Gardening 101 seminar presented by Master Gardeners in the City of Maricopa. Volunteers from the Superstition Mountain Master Gardener working group headquartered in the Apache Junction and Gold Canyon area are regulars on the Arboretum schedule of events.

In fact, their next presentation will be a workshop entitled "For The Birds" on February 6, 2016. Superstition Mountain Master Gardeners will explain how landscape choices such as citrus, rosemary, lavender, Pomegranates and more can bring the Mediterranean to you - right here in Pinal County. Volunteers with the Superstition Mountain Master Gardeners program continue their Fall-Winter once-a-month Saturday series of seminars. There's no pre-registration required to attend these once-a-month workshops offered by Superstition Mountain Master Gardener volunteers, and no additional fee or enrollment - these are included with daily admission of $10 at Boyce Thompson Arboretum - and free to our annual members, also free if you have an Arizona State Parks annual pass.

Master Gardener presentations are always on the first Saturday of each month at 11:00 am. Mark Your calendar for February 6th "For The Birds," and then March 5th for "Going Native;" and April 2nd is "Spice Up Your Life." For more information about our local Master Gardeners, their classes and volunteer work, call Carol at 602-438-4003 or email caparrott21@hotmail.com for more information or check out the Arboretum website at http://cals.arizona.edu/BTA/index.html look under the “Events” tab.

The arboretum is situated at Highway 60 milepost 223, just three miles west of Superior, and just 45 minutes east of Mesa, the Arboretum is an Arizona State Park that is cooperatively managed with the University of Arizona. Founded in 1925 and dedicated to instilling in people an appreciation for plants, this 323 acre botanical collection includes a wide range of habitats along nearly two miles of paths.
Many Arizona residents have come to love the cactus gardens, the Australian forest of towering Eucalyptus trees and the fragrant varieties of the herb garden which are only a few of the many displays that can inspire, awe and encourage the plant enthusiast. I have been there many times and still come away with a greater appreciation for the desert-adapted plants that can enrich our landscapes and our lives.

If you go, take time to stroll through the collection of 3,200 different desert plants unique to the desert, where exotic species from around the world thrive alongside native Sonoran Desert plants. Short trails lead through the Sonoran and Chihuahuan desert areas, a cactus garden, several rich riparian areas, an Australian forest, and the herb and rose gardens. Even in the driest of winters, you almost always can find spring wildflowers at the Arboretum. In a winter when rains fall on a regular basis, such as this one, an impressive wildflower season can result.

Several trails branch off from the first part of the Main Trail, so you don't have to walk far to see the highlights, and much of the trail system is wheelchair-accessible. The Curandero/Sonoran Desert Trail showcases traditional herbal medicines of the Sonoran Desert. Curanderos are traditional healers in Mexico.

The historic Smith building, a short walk down the main trail, contains botanical exhibits and displays; and two display greenhouses feature cacti and other succulents that might not otherwise survive winter cold at the park’s 2,400-foot elevation. The Smith Interpretive Center, between the display greenhouses, has exhibits on plants and the natural history of this corner of Arizona.

For the serious gardener, the Arboretum is an ideal place to purchase unique plants. Many of the same mature plant species that are on display in the park can also be purchased on site. Many people get new landscaping ideas from the 2.5 acre Demonstration Garden. It shows various plants in the context of a functional landscape, complete with patios, walls, shade structures, vine arbors, walkways, and rockwork. Interpretive signs help guide the homeowner through the processes of site analysis, basic design and plant selection, while introducing important concepts such as water harvesting, the mini-oasis and the challenges of salinity.

Forming a scenic backdrop and towering over the property at an elevation of 4,400 feet is nearby Picketpost Mountain. While there is no public access from the arboretum trails, there is information available at the park about this historic area.

More than 200 species of birds and 72 terrestrial animals have been seen about the grounds. Ayer Lake and Queen Creek on the Main Trail, are good places to watch for wildlife; and you may even see endangered species such as the Gila topminnow and desert pupfish.

Boyce Thompson Arboretum is open daily (except Christmas) from 8 am to 5 pm. Admission is $10.00 for adults, $5.00 children age 5-12 and free to the younger kids.

For additional information please call (520) 689-2811 or visit their website at http://cals.arizona.edu/BTA/index.html
In the past we’ve discussed five gardening resolutions for the new year. In case you have forgotten them, here they are again. In addition, I would like to propose two more for your consideration.

While it is common for people to choose personal goals for the new year, it is not so common to set goals for our gardens and landscapes. Considering the many benefits of having healthy plants around us, I would like to suggest that we do something this year to improve our residential, commercial, and community properties.

Success or failure in achieving a goal often depends upon how we approach the selection and fulfillment of the resolutions. If we are casual in our approach, we probably will not be sufficiently motivated to finish up the goal. If we have the right mind set, choose our goals and projects carefully, set easily achievable intermediate milestones, and track our progress carefully we can have every expectation of reaching our goal.

The garden and landscape resolutions I suggested back in 2012 focused on the importance of improving the productivity and appearance of our gardens and landscapes, conserving gardening inputs, and doing our part to help improve our living environment. Here are the goals that we suggested at that time. How do you think we did?

**Improve the value of your property by upgrading your gardens, landscapes, and outdoor living areas.**

It is well known that a nicely maintained landscape can improve the overall value of residential and commercial properties. Take a walk out into your yard and make a list of all projects that could make a difference, and then create a plan to make it happen.

**Conserve water by increasing the efficiency with which we use this precious resource.** In the midst of what is turning out to be a relatively long term drought, it is important to conserve every drop that we can.

The installation and correct maintenance of a good, well designed drip irrigation system is one way to conserve water outdoors. An important feature is the timer. A good timer will automatically stop the water when an irrigation run is completed. Much water is wasted when we forget to turn the water off.

Another way to cut water usage is to irrigate at the correct time. During the cooler months, plants typically use less water. The warmer it gets, the more water they will need to stay healthy. Water content in the soil is also dependent on the soil texture. If a soil is sandy, more frequent irrigations will be required. A clay soil holds more water than a sandy soil and will need to be irrigated less often.

To determine soil water content, dig down about six inches into the soil and squeeze a handful from the bottom of the hole in your hand. If it leaves a wet outline on your hand and makes a strong ball, it has plenty of water for your plants. Do not irrigate. If the soil forms a weak ball and is only slightly moist, it is time to irrigate. By doing this test several times during the year, you will begin to get a feel for how often the plants in your soil need to be irrigated.

**Grow more of what we eat.** Not only is gardening fun, a good way to teach children where food comes from, and a healthy past time, it is also a way to become more engaged in the all essential process of producing food and fiber in a world where starvation and malnutrition are all too common. By growing at least a part of what we eat, we can obtain all of these benefits with the investment of just a few minutes each day.

To grow more of what we eat, plant a garden in a container, build a raised bed garden, or dedicate part of the yard to a home farm project. Be sure to plant what you like to eat, and then take good care of your project.

**Work on the heat island effect.** While Pinal County communities are not the huge metropolises that our neighbors north and south have become, growth is still slated for our area. With growth comes ever increasing areas of hard surfaces, including concrete, asphalt, brick, and roofing materials. These surfaces absorb heat from the sun during the day and release it at night. As a result, the ambient temperature at night in larger cities is typically higher than in outlying areas. This is called the heat island effect. By planting trees

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- 2016 New Year’s Resolutions . . . Continued on Page 4
and shrubs to cover and shade these hard surfaces, the amount of heat absorbed is reduced. As a result, there is less heat to radiate back into the environment at night. Plants are also good at removing carbon from our environment.

**Improve our neighborhoods by building a sense of community.** As neighbors work together to improve the appearance of their homes and yards, they demonstrate their commitment to making things better for all. This sense of community lends itself to creation of a healthy pride in accomplishments and of reaching a common goal. What better way to give back to our communities and to our neighbors than by installing and maintaining outdoor landscapes that not only meet community codes, but also lend themselves to a sense of meeting the greater good.

Today, as we look towards a brand new year in 2016, can we add two more for consideration? Perhaps you can think of others that might be best for you.

**Add color to the yard by planting both annual and perennial flowering plants.** Annual flowers will live for only one season of growth but the color that they bring can give a quick uplift to the landscape. Perennials, on the other hand, can live for more than one growing season and, as a result, give a longer lasting benefit. Trees and shrubs with showy flowers will bring color in the upper and mid ranges of the landscape and complement the lower growing bedding plants. Color at high, mid, and low visual angles will give a totally unique look to any property.

**Make your yard bird friendly.** Birds are attracted to areas where there is cover and nesting space. Trees and shrubs provide these naturally. The more plants there are in a yard, the more likely birds will hang around. Birds are beneficial because many feed on insects and most bring music to our lives.

With a set of resolutions for the new year firmly in hand, let’s go forward and have a great year in the garden.

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**Issued in furtherance of Cooperative Extension work, acts of May 8 and June 30, 1914, in cooperation with the U.S. Department of Agriculture, Jeffrey C. Silvertooth, Associate Dean & Director, Economic Development & Extension, College of Agriculture and Life Sciences, The University of Arizona. The University of Arizona is an equal opportunity, affirmative action institution. The University does not discriminate on the basis of race, color, religion, sex, national origin, age, disability, veteran status, or sexual orientation in its programs and activities.**
Drip irrigation is a great way to get water to desert gardens and landscapes and still be stingy with a precious natural resource.

The cool months are an excellent time to repair or install a new system because plants can get by for longer periods of time between irrigations. Summer projects are a little trickier because plants will need frequent irrigation in order to survive. If the system is down the plants may get stressed for lack of water. Working on these projects during the winter months gives a little more leeway to address problems and unforeseen issues.

A serviceable drip irrigation system that works without problems doesn’t just happen. It takes careful thought and planning before the first trench is dug. It also must be properly assembled, and it must be properly managed.

Tailor-made for desert living, drip irrigation is a simple, economical, water efficient, and labor saving way to deliver life giving water to plants. The idea has been around for quite some time but a steady improvement in the quality and serviceability of equipment and a desire to conserve water continues to inspire people to install a new system.

There are many different variations of drip systems to choose from. The more common systems use drip, trickle, or ooze technology, but misting, spraying and sprinkling are also available. Most stores carry a wide variety of components to design and assemble whatever kind of system that meets your particular situation.

A drip irrigation system will consist of four main parts: basic controls, safety features, polyethylene hose, and emitters. It will also include the extension tubes that plug into the lines to carry a controlled quantity of water to the soil.

The basic controls include the shutoff valve, pressure regulator and filter. The manual on-off valve is usually combined with the anti-siphon valve required by public health codes.

A pressure regulator reduces the water pressure from the 50 to 90 pounds per square inch (psi) in most household water lines to the low 5 to 30 psi needed for most drip systems. It also helps to keep the pressure constant in the system when normal fluctuations occur in outside water lines. This will assure a measured flow of water through the emitters.

The filter screens out sediment, undissolved salts, and other particles in the water that could plug small openings in the emitter. Filters come in different shapes and capacities. Two common kinds are the inexpensive cylindrical filter and a larger Y-shaped style that is easier to flush and clean.

Because a drip system to be effective must turn on and off frequently, an automatic timer of some kind is both a trouble-saver and a time-saver. With an adapter that connects to an electric time clock, you can easily convert a manual valve to automatic. Timers can be hooked directly to the household electric current or can be battery- or solar-powered. The timer can save a lot of extra work and help ensure that all plants get the water they need, when they need it.

Safety features include the back flow prevention device and end of line clean outs. Because most drip systems are connected to a home water supply, it is important to prevent the flow of water back from the drip system into the clean water lines. Because of surge and suction forces, it is possible for water from a drip system to flow back into the water lines as the systems starts and stops unless there is a something that stops the flow. A back flow prevention device installed in the drip line is designed to do just that.

From time to time it is important clean out debris that collects at the end of drip lines in order to prevent clogging. A way to open the end of the tube while the system is running will help flush out sand, algae, and other potential problems. Some people simply kink and secure the end of the tube to allow easy opening and closing of the line. Others use purchased devices to accomplish the same end.
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Polyethylene hose is the critical part that carries the water from the source to the point where it will be delivered to the plant. The newer styles of hose are quite flexible and strong. This gives considerable flexibility in designing and installing a system that is right for you. Sections are joined by fittings that require no cement or special tools.

Small-bore polyethylene tubing is called micro-tubing, spaghetti tubing, transfer tubing, or extension tubing and are typically one-eighth to one-fourth inch in diameter. Tubing of this size is used to divert water from the larger laterals.

Emitters come in many shapes and sizes with various internal mechanisms. All have the responsibility to slow the flow of water from the line and dispense it drop by drop to the soil. Emitters have rated capacities set by the manufacturers, so that at specified operating pressures, they deliver so many gallons of water per hour.

For most purposes, a regular, non-pressure-compensating emitter is simple, reliable, and inexpensive. These will usually be the workhorses that will be used throughout the system. Other specialty emitters can be used for specific purposes.

Assembling a drip system is fairly easy and seldom takes more than a few hours. It is always a good idea to start with a fairly detailed plan, so that you will know the amounts of equipment you will need to purchase. On grid paper, draw the house and garden with a scale of 1 inch to 8 to 10 feet. Locate buildings, walkways, patios, faucets, and the kinds and sizes of plant that will need to receive attention. Mark any slopes with a downward arrow and note elevation changes. Also note what kind of soil you have: is it porous, sandy soil; medium-textured loam or moisture-holding clay? On the drawing, sketch where the drip lines will run. Use this to assemble a parts list of fittings, emitters, hose and basic controls. When you have everything together, it is time to assemble the system. Most stores where parts are available, will help ensure that you have what you need and describe how to assemble the system.

As you plan your system, do not forget to design in separate irrigation lines for low water use plants, medium water use plants, and high water use plants. It does a plant no good when, for example, a low water use plant like a saguaro cactus, gets the same amount of water that a high water use plant requires. Too much water, or too little water, can be devastating to a plant.

One final, critical suggestion: be sure that the size of the system matches the volume of water available so that the pressure, and water flows, will remain constant between the front and the end of the system. Measure your flow by capturing the volume of water that flows from the faucet in one minutes time. With this gallons-per-minute measurement, most stores will be able to help you decide the system size that is right for you.

Correctly installed, drip irrigation is an easy way to water garden and landscape plants efficiently; but a good system must be properly designed, assembled and managed. A little planning and careful attention to detail will make possible the installation of a good, serviceable drip irrigation system.
Using worms to compost household kitchen wastes is not a new concept, but more and more people are finding it a great way to put to good use those pesky kitchen scraps that usually just get tossed into the trash.

I have been tending my worm compost bins now for several years, first at the Extension office and now at home. The worms are quiet and unoffending. If I tend the bins correctly, they are odorless. What more could you ask of a system that accepts peelings, apple cores, and past-their-ripe vegetables and gives great compost in return? These systems can be fun and relatively painless to work.

I know what you are thinking. “There is no room in my house for composting bins!” That may be true, but a bin can take up less space than you think. I have three bins that I keep in an out-of-the-way corner. Generally most people do not even know that they are there. Since they are lightweight and portable, I can easily move them to another location.

I really like the compost that I get when the worms finish their work because it is a great garden fertilizer. I use it as a surface mulch around both indoor and outdoor plants. It is highly nutritious for the plants and serves as a barrier to help slow evaporation and cool the soil around the plants. It can also be mixed with the soil as an additive.

Using worms to make compost is called vermicomposting and a quick check of the internet under that name will show just how popular it has become. Apparently there are a lot of us who enjoy using worms to clean up the kitchen and to make our own nutritious compost. I tried it out as an experiment and have become a huge fan of the process.

I use red wiggler worms to compost all kinds of kitchen wastes. In addition to vegetable residues, they will also consume ground up egg shells, coffee grounds, and other materials. I do NOT feed them meat scraps, grease, or citrus peels. They do not like them.

Meat and meat by-products are usually not recommended for any type of compost, indoors or out. They attract flies and vermin, are slow to break down, and can create unwanted odors. When I clean up the kitchen, I toss these away.

Citrus rinds are filled with highly acidic compounds that can be pretty intense. Take a bite out of a citrus peel and you will see what I mean. I was cautioned against feeding citrus peels to the worms by Linda Leigh, owner of Vermillion Wormery in Oracle, the place where I got my worms. On the other hand, they absolutely love watermelon and cantaloupe rinds. They are not all that finicky in their foods of choice but they do have decided preferences.

If you would like to start your own worm compost system, it is as easy as one, two, and three. Here is what you do.

First, you have to have a container with a lid. There are many sites on the Internet that would be glad to sell you a Cadillac system for a price. The right bin can make the process easy. However, these commercial setups can be pricey. Since I am a cheap kind of a guy, I chose to make my own boxes out of plastic storage bins. You know the kind that has a tight lid and is good for storing all kinds of things?

At home I used a regular carpenter drill with a one-eighth inch bit to bore holes in the bottom, the top, and the sides. You want a hole that is large enough that air can circulate but small enough that the bedding doesn’t leak out. Don’t be shy, make lots of holes. 
Second, select a bedding material for the worms. This will be the place where they live and where you will feed them. Some people use well-aged horse manure, but I personally have found that a soft house plant potting medium also works well. It needs to be moist enough to drip one or two drops of water when you squeeze it really hard in your fist. Too dry, and the worms will die; too wet and they will climb up on the sides of the box.

The bedding material should be at least six inches deep to start, but as the worms work, you will find the level rising. That is good. I top my bedding material with shredded paper from my household shredder. The paper topping helps prevent evaporation of water from the medium, protects the worms, and helps absorb extra water when the medium gets too moist. Because the worms will eventually break them down into compost, it is a good way to recycle all of those small chips of paper that we usually have to toss away.

Third, you need worms. Again, I use red wigglers. They are really good at composting. Don’t try to use them in the regular soil outdoors; they don’t do well there. “Keep them in the box,” Linda told me. You have two basic choices in where you get them: you can purchase them on the Internet or you can buy a start from a local provider. In either case, the easiest way to find them is to search online.

I feed my worms at least once a week but they generally can handle new food every day. I just dig down into the medium a couple of inches and bury my scraps. They will take it from there. For stiff vegetables, such as head lettuce wrappers, I put them into a plastic bag and toss them into the freezer. The freezing breaks down the plant material and makes it easier for the worms to do their thing.

Why do I keep my worms inside? There are two basic reasons. One is that the temperature extremes in the desert make it hard on the worms. The heat of the summer or the cold of the winter are hard on the worms. Heat, especially, can be lethal. The other reason is insects. Sphagnum gnats, cockroaches, and other decomposing insects love the moist dark medium and they all live outdoors. I keep my worms indoors where these critters can’t find them.

There are other tips. Contact me if you are interested. While many people are repelled by the idea of keeping worms inside their homes, I have found my “livestock” to be both useful and entertaining.

If you have questions about this newsletter, have any plant related problems, or wish to have a publication sent to you, please call (520) 836-5221 x204 and leave a message, or call (520) 374-6263 to reach one of our volunteer Master Gardeners. When leaving a message, please clearly state your name and your telephone number. If you have a plant problem and are able to email a picture, please send a picture with any information you can provide about the plant, and your contact information to our diagnostic team at macmastergardener@gmail.com and a Master Gardener will contact you. You are also welcome to stop by our office at 820 E. Cottonwood Lane, Bldg. C in Casa Grande.

This newsletter is available to view on our website at:  http://extension.arizona.edu/pinal

Richard D. Gibson
Extension Agent, Agriculture

RDG/te/sh/aw
59 mailed copies
261 emailed
Garden & Landscape Short Course to begin in two Pinal County locations:

University of Arizona Cooperative Extension
820 E. Cottonwood Lane, Bldg. C
Casa Grande, AZ  85122
January 12, 2016
9:00 am to noon
For more information, please contact BJ at (520) 431-6167

Central Arizona College, Superstition Mountain Campus
273 Old West Highway
Apache Junction, AZ  85119
January 13, 2016
1:00 pm to 4:00 pm
For more information, please contact Carol at (602) 438-4003

How to connect with Rick Gibson online…

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