



Mohave County Master Gardener Program

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Featured Article

"Composting with Worms or What is Vermicomposting"
by
Robin Eisland, Lake Havasu City Master Gardener

I'm an Oregon transplant, where plopping a plant in the ground and watering was all that was needed for a thriving garden, and have moved to Lake Havasu, where the soil seems to be nothing but rock and sand. I quickly discovered I needed to enrich my soil if I wanted a thriving garden. I'd heard about vermicomposting, the use of worms to convert organic waste into fertilizer, and was impressed both with the ease of setting up a composting bin, as well as the results of the finished product: worm castings. Vermicompost, enhances plant growth, suppresses disease on plants, increases porosity and microbial activity in soil, and improves water retention and aeration. Castings are literally "gold" for your garden.

If you're serious about getting into vermicomposting, you'll be glad to know that it takes only a few simple steps to get started. And only two steps require much thought: choosing a bin and finding the best worms. With those elements in place, the rest is merely a matter of gathering some household supplies, including your daily food scraps, and setting up the bin.

1. Obtain a Worm Bin

The first thing you need to do is get your hands on a bin. You can purchase inexpensive, pre-made worm bins online, or you can make your own out of plastic storage bins. There are numerous resources online to show you different types of bins and how to build them yourself. Keep in mind that the bin does not need to be very deep. Red worms live and eat in the top six to eight inches of material. Holes must be drilled in the sides and bottom to encourage air flow. Another bin underneath will catch any moisture that leaks from the bottom.

2. Choose Worms for Your Bin

You may have seen the lovely earthworms out in the garden, and you may know that they're doing a great job aerating the soil, breaking down organic matter, and leaving rich castings behind, so it seems that they would be perfect for a vermicompost, but this isn't true. Red worms, *Eisenia fetida*, are best used in vermicomposting. The difference between composting worms and earthworms are that composting worms do a faster job of breaking down organic matter from beginning to end and are more prolific. Earthworms are much more effective at further breaking down organic matter that has already decomposed somewhat. Go with red worms, or red wigglers for a successful worm bin. Another great composting worm is the *Perionyx excavatus*, or blues. These have a voracious appetite, and create great castings, but tend to be escape artists, always trying to get out of the bin. I prefer reds for this reason. Worms can be purchased online, in tackle shops or there may be local vendors. I start with about a pound of worms, about 1000, but they multiply quickly so you can certainly start with less.



3. Select and Prepare the Bedding Material

The most commonly used bedding material is newspaper, cardboard, cardboard egg cartons and coir or peat moss. If you are using newspaper, shred into thin (1-inch-wide) strips. If you are using cardboard, tear it up into fairly small pieces. I personally prefer cardboard, as it doesn't seem to mat as much as paper and the worms love hiding in the little grooves. Avoid any type of glossy paper. Add a handful of garden soil which will introduce beneficial microorganisms.

4. Moisten the Bedding

Worms will not survive in a dry environment, so you'll need to moisten the bedding materials to get them off to a healthy start. Place your bedding material into a clean bucket or tub and start adding water. I like to start with enough material to fill the bin ½ full.

Mix the water into the bedding well, adding a little at a time. You want your bedding material to feel like a wrung-out sponge. A couple of drops should be released from the bedding if you squeeze a handful of it; if more water drips out, add a bit more dry bedding to get the moisture level right. Dump the bedding into the bin, and fluff it up a bit. You want your worms to be able to wriggle easily through the bedding.

5. Add the Worms

Once you've moistened the bedding and placed it into your bin, your worm bin is ready for the worms. Scatter them gently onto the bedding, and cover up the bin. Remember, worms like it dark and will shy away from the light. I like to add a few pieces of damp newspaper over mine before covering with a lid.

6. Find a Home for Your Worm Bin

Where you place your bin is important. It should be kept in an area that stays between 55 and 80 F. Though, I've personally kept mine happy down to 35 and over 100 F with a few accommodations (see below). Prime spots include kitchen, laundry rooms, garages and outside in a shaded location (providing the weather cooperates). If you're lucky enough to have an air conditioned garage, that's a prime spot for them when it's too hot or cold for them outside. I keep mine outside fall, winter and spring. Adding some C-9 Christmas lights underneath and a warm blanket over if it drops below 45 degrees, or putting some ice packs on the top of the bin if it gets too hot. I'm off to cooler climates during the summer, so my worms are released in my raised bed which has a drip system, shade and plenty of mulch to help keep them cool. When I come back in the fall, I still have plenty of worms to harvest. I just put some of their favorite watermelon rinds in and in a few days there's a swarm around them to collect and start over!

7. Feeding the worms

Let your new bin sit for a few days without adding food so that the worms work their way down into the bedding. After that, your worms are ready to go to work.

Bury food scraps under bedding in one corner of the bin. Worms thrive on fruit and vegetable scraps including lettuce, melon rinds, apple cores etc. Limit the amount of citrus that you use due to the acid. Do not add meats, bones, oils or dairy products as they tend to smell quite rancid before they break down completely and can attract pests. Feed your worms about once a week, in a different location each time. Top off the feeding with some fresh bedding material, which they consume as well. If in two weeks, they haven't finished off the first feeding, you might want to add fewer scraps until they catch up. I like to chop my scraps slightly in a food processor, but it's not necessary.



Finely ground egg shells are great for the worms digestion, and I add some at every feeding. It is better to underfeed than overfeed worms, which leads to an anaerobic and smelly situation. A well functioning worm bin should have a good, earthy smell.

If you consistently have liquid (leachate) coming out the bottom, you are keeping your bin too wet. Contrary to some beliefs, this liquid at the bottom of the bin is not beneficial “worm tea”. Leachate is a sign that your bin is anaerobic, meaning “without oxygen”. If it has a foul smell, the liquid should be discarded. If it doesn’t have a foul odor it can be diluted heavily with water, and then used on non-edible plants. Proper worm tea is created by “brewing” your fresh castings and directions can easily be found online.

8. Harvesting the castings

Now for the rewards! To harvest the castings, simply construct a sieve using 3/16” hardware cloth, remove the bulky material at the top of the bin and set it aside in a plastic bucket, and sift the castings, separating the worms and placing them in the bucket as you go. I like to use a 1/4” screen meant for gold panning which fits perfectly over a five gallon bucket. You will end with a rich organic soil amendment and bucket filled with worms and bulky debris which can be added back in to your bin. Use the castings right away, or keep them moist to keep the microbes alive.

If this all sounds like a bit too much work, there are reputable sellers online that sell the castings. You’ll know they are fresh if they are moist when they arrive and occasionally you’ll find worms inside. Either way you do it, your plants will thank you!

Robin Eiesland, Associate Master Gardener. For more information, contact your local Master Gardeners at (928) 753-3788.



Andrew's Corner

I would like to start this off with a very big thank you and great job to all those that volunteered their time for the Fair. The Master Gardener booth looked great. I really appreciate the artistic take for this year's booth with all the pictures and the "walk-through" innovation that added more space. I would really like to highlight the fantastic painting by our own talented Shelley Lossing (who also edits our Wind & Weeds Newsletter) and who has generously loaned the painting to hang in our conference room.

Though the Fair in general seemed smaller than I have experienced in the past, it seemed to have been more exhausting. It has been more than a week since it has ended and I feel I'm just now recovered from the week. I appreciate that I can count on our MCMGs to organize and manage an event like the Fair with little to no supervision from me so I can observe and support other areas of Extension that may need a little more attention from time to time.

It is also wonderful when I get messages from my colleagues about how well our MG's can handle difficult situations. My colleagues commended our volunteers about their skill for steering a conversation towards potential dangers and hazards of a particular product. But it reminds me to let everyone know, if you run into a difficult situation

with a client, please let me know so I can follow-up and/or refer them to a specialist that may have more accurate information.

A little update about our MG Program Coordinator position. The position has been posted for around a month, but we have not received an application yet. If you know someone that may be interested in the position, please have them review the job posting and apply at: <https://arizona.csod.com/ux/ats/careersite/4/home/requisition/6602?c=arizona>.

The last thing I would like to make clear, is that we are planning a having an in-person Master Gardener Training Course this year. It is my goal for the month of October to have most of the planning completed and we will start advertising in November. The 13-week course will be in Bullhead City, to make up for the cancelled course last year. Again, if you know of anyone that may be interested in taking the Master Gardener Training Course, please let them know that details should be coming out in the next month or two.

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Bullhead City Master Gardeners

Dennis Lesowsky – Coordinator
Debbie Miller – Co-Coordinator
Bonnie Muir- Secretary
Bill Stillman - Scribe

Well, we have pretty much survived the summer and are ready to start our fall routines. It was a hot and dry season here in the Mohave Valley. As such, we are dark for half of June and all of July and August. As September arrives the schedule resumes and meetings happen.

In June and July we had very few hotline calls. Of the calls we did receive, one was for a saguaro cactus damaged beyond help by physical harm and disease. We recommended it be removed before it came down on its own and caused property or human damage. Another hotline call involved watering problems with palm trees. Several calls were resolved by phone calls or texts. These involved mostly watering and pruning problems.

Our school garden mentoring program has resumed with the district opening with in-class attendance. Becky Leisle is the coordinator for the Academy of Building Industries. The students have installed new planting beds which are being readied for seedlings. They have started seeds indoors using recycled toilet paper roll cores as seed starters. Bullhead Middle School is under the guidance of Maria Waitas. They are just now getting back to the gardens.

Our September library presentation was on restarting the vegetable garden after summer dormancy. Dennis Lesowsky was the presenter with many tips and helpers to get back into production as soon as temperatures allow (see photo # 1).

Prior to the start date of the Mohave County Fair, Leroy, Bill, and Kingman Master Gardener Coordinator Linda Reddick participated in judging several categories of 4-H projects. Bill commented he enjoyed doing this event and volunteered to do it again.



Our Bullhead Master Gardeners helped out at the Master Gardeners Booth at the Mohave County Fair. Pat Backman worked Friday, Geneva Carreon dressed as a Pollinator Bee and worked the Fair on Kids Day (Thursday). Leroy and Bill worked the Sunday afternoon shift, and the booth tear down as well. Each commented how they liked working the booth with the variety of questions asked by those stopping by the booth. The booth was set up in an array of displays, from photographs of plant materials, to informational displays of horticulture items. Great job Kingman Master Gardeners (see photos # 2a 2b, 2c, 2d).



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Photo 2D

Photo 2C

We in BHC are readying for the annual Mohave Electric Cooperative Tree Sale. A Master Gardener Workshop on planting desert-adapted trees will be held at Bullhead City branch of Mohave County Library on October 14, 2021 from 2PM to 4PM. The Master Gardeners then help on the tree delivery day with a host of service clubs from schools. This activity takes place November 13, 7 a.m. to 1 p.m. New this year is the place of the activity. It has been moved from the City Hall Parking lot to the Fieldhouse at 3663 Bullhead Pkwy, Bullhead City, AZ 86442.

A group of Master Gardeners including Debbie, Becky, Leroy and Bill met with Lauren Peterson of Mohave Community College on September 8, 2021, to discuss the possibility of establishing a community garden at the MCC Bullhead City Campus. There were two possible locations for the

garden. The first location is adjacent to the main parking lot (Plot size; 202 ft. x 75 ft.). This site did not offer any shade or wind protection but it was visible to anyone using the parking facilities. The second location (Plot Size; 258 ft. x 30 ft.) is behind the main buildings, near the nature trail. This area was smaller than Location One but did offer some shading in the afternoon however, it was not easily accessed from the main parking area. It was felt the best choice for the garden would be the one adjacent to the parking lot. It would be visible to most of the school traffic, and not hidden behind the buildings near the nature walk. The size and the construction of the plots, utilities, construction of a green house, and the upcoming Master Gardener Horticulture Class (possibly at this campus) were also discussed during this initial meeting.

At the Laughlin Community Garden, supported by the University of Nevada, several of our Bullhead Area Master Gardeners (primarily Becky and Leroy) are working the garden plots, planting melons and squash, trying to get them to produce during our harsh summer months. A shading system was installed about a month ago, producing good results during the summer growing season (see photos #3a, 3B).



Photo 3A



Photo 3B



Kingman Master Gardeners

Linda L Reddick, Coordinator
Izzy Brood, Co-Coordinator

Yes, sir re-Bobbie we have been a very busy group this summer.

Starting off June 19th Don did an excellent presentation on composting which was very well attended and lots of great public comments. July 17th Herbs were the subject in the spot light. Mary M and Mary C spoke about their favorite herbs. We all got our hands dirty and taught them how to propagate or plant herbs, using several different herbs in a variety of containers.

Fun, fun, fun, everyone had a ball, the public loved it! Way to go! Cathy followed August 14th by doing a presentation on hydroponics in buckets and pales. What a great job Cathy, the public was enthralled, and you had their complete attention. August 27th Nancy, Mary Mc. and other Master Gardeners spent the morning at the Kathryn Hiedenreich Senior Center, illustrating how to dig up over-grown iris and replant them. The extra rhizomes were given to anyone who wanted some. Since there was an abundance the remainder were taken to the fair to be given away. The very next day Nancy hosted a seeds exchange at the extension office. Many Master Gardeners shared the seeds they had collected from their own gardens, both flower and vegetable. Some of which were native, others were heirloom varieties, all of which have produced abundant crops or flowers in the Kingman area. Excitement was in the air as September arrived.



It's Fair time...Since there was no fair last year, everyone was anxious and ready for the Mohave County Fair. Izzy took the lead and did a bang up job of coordinating decorations, booth staffing and all around maintenance.



There was a lot of iris rhizomes given away, and many many public questions on a wide variety of subjects were answered. During kids day, Izzy, Colleen, Geneva (from Bullhead City)and myself dressed up as farmers, scarecrow, and a bee.



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We greeted all of the school children, answered many questions about the vegetables and were asked if we were farmers. In addition to the Master Gardener booth the Master Gardeners' were the superintendent and co-superintendent of the fruit and vegetable exhibit and judging. Dr. O'Callaghan from the University of Nevada was gracious enough to drive in and judge. She was thorough, no blemish or disorder was missed. In between workshops and fair, Kristen from the fair grounds asked for a list of trees specifically for Kingman. Cindy quickly provided an extensive list of trees for their reference. I spent a morning talking to the children in the Children's section of the Community garden about bees. They were fascinated, and several bees were buzzing about, which added to their excitement.



Linda's Paper Mache Birthday Cake



Speaking off children, it has been a challenging start to the school gardens this year. New rules and regulations because of Covid, complications in opening of schools and their individual schedules, as well as classroom availability. The late start also disrupted the normal soil preparation and planting. Nonetheless, thanks to Bob, Izzy and Colleen the gardens at Hualapai, Manzanita, and Cerbat elementary schools are up and growing. Great job team, it took persistence, and perseverance but you got it done.

Kingman is growing as we have received a slue of client calls. Covering; watering, pruning, citrus, when to plant what, trees, native plants, actually almost every subject concerning gardening. Everyone has certainly been busy handling client calls.

Kingman Master Gardeners might be a relatively small group, but what we lack in numbers we make up for in dedication. I could not be prouder of this group of Master Gardeners. Thank you to everyone for your time, efforts and dedication to the program.



Lake Havasu City Master Gardeners

Sharon Gomez, Coordinator
Jamie Zimmerman, Co-coordinator

Can we say Fall is just around the corner?! Temps are beginning to drop slightly – at least nothing over 115! I've had some trouble tolerating the humidity – remember, it's supposed to be a DRY heat! If we have humidity, we should at least get the rain to go along with it!

Havasu Master Gardeners have lost a couple from our ranks. First, Jerry Cornell passed the first of August. Jerry was always a welcome face at Home Garden Day where he could always be counted on to give good information to any and all questions handed him from our residents. He was always there to help out at our various events held throughout the year. Jerry will be sorely missed. Then, our Co-Coordinator Jamie Zimmerman recently moved to Tucson. Our loss will be a big gain for Tucson Master Gardeners. We are all envious of Jamie's move and she too will be sorely missed.

We continue to receive numerous hotline calls and emails asking for assistance. Residents are losing plants right and left after a second extremely hot and dry summer.

We have many questions about citrus: die-back, fertilizing, planting, and watering. Last summer played havoc with so many citrus trees due to the extreme heat. Then again, watering was the main issue as well as the proper fertilization schedule.

Calls regarding failing saguaros and ocotillo resulted in the resident's need to remove the plants. The ocotillo already had nearly half of the canes falling over showing dead roots. The remaining canes were pretty much dead too.

We also had a couple of calls resulting in home visits regarding mesquite trees. Portions of the tree was dying off and there was definite evidence of past and present damage from borers. We suggested the owner totally remove the tree due to all the damage. However, he decided to have his landscaper cut all the branches off down to the bare, main branches to see if it could be saved. We told him approach the situation then as an experiment and to let us know the outcome.

A variety of Lake Havasu Master Gardeners have stepped up to answer many other inquiries. From how and what vegetables to grow in our low desert, cactus identification, along with diseases and pests attacking plants.

I hope you enjoy the article by Robin Eiesland on worm cultivation. Robin practices this in her own garden with success. I thought it might be too difficult to do in Havasu, but Robin has found a way to make it work here in the very low desert!

Now, Fall is approaching – hopefully sooner rather than later. My fingers are itching to get out to start some much-needed light pruning. I look forward to planting some new and different shrubs to give my landscape a boost and more color.



Mohave County Master Gardener Fall 2021 Calendar

October

Kingman School Gardening - Every Tuesday, Wednesday and Thursday

TBD LHC, Library Landscape Clean Up and Maintenance

5th BHC Laughlin Community Garden, 7am -all month

5th LHC Lake Havasu Library, Home Garden Day, 11am -1pm

6th BHC Nevada Master Gardeners Meeting on ZOOM

12th BHC Master Gardener Meeting, 3pm to 4:45pm

13th BHC Dig Community Garden. Tree Planting Demo, 11am (Bill, Leroy and Debbie)

14th BHC Bullhead City Home Garden Days, 10am to 12pm

19th LHC Business Meeting via Zoom, 4 pm

21st BHC Bullhead Library Presentations Tree Planting Native & Non Native Trees, 2pm to 4pm

22nd KNG Master Gardener meeting - Extension office - 1:00pm

23rd KNG Seed & plant saving & propagation - Extension office 1:00pm

27th BHC Laughlin Ask the Master Gardener, 10:30am to 12:30pm

November

Kingman School Gardening: 2nd thru 18th every Tuesday, Wednesday and Thursday

TBD KNG November Kingman Master Gardening meeting

TBD KNG November -date TBA - Pruning deciduous trees and shrubs workshop

TBD LHC Meet three Master Gardeners (May move to first of Dec.)

2nd BHC Laughlin Community Garden, 7am -all month

2nd LHC, Lake Havasu Library, Home Garden Day, 11am -1pm

3rd BHC Nevada Master Gardeners Meeting on ZOOM

4th BHC Bullhead City Home Garden Days, 10am to 12pm

9th BHC Master Gardener Meeting, 3pm to 4:45pm

10th BHC Dig Community Garden .All About Irrigation, 11am (Bill, Leroy and Debbie)

16th LHC, Business Meeting via Zoom, 4 pm

18th BHC Bullhead Library Presentation Intro to Home Hydroponic Gardening, 2pm to 4pm

December

Kingman School Gardening: 1st thru 14th every Tuesday, Wednesday and Thursday.

TBA December Christmas gathering TBA

LHC No Business Meeting due to Holidays

1st BHC Laughlin Master Gardeners Meeting Zoom

7th BHC Laughlin Community Garden, 7am -all month

7th LHC 11-1, Lake Havasu Library, Home Garden Day

9th BHC Bullhead City Home Garden Days, 10am to 12pm

14th BHC Master Gardener Meeting, 3pm to 4:45pm

17th BHC Laughlin Master Gardeners Community Garden, TBD

Fall 2021 Wind & Weeds Assembled by Shelley Lossing, Master Gardener

