

EarthTainer II™ WaterMizer™ Edition

Construction Guide

Rev. 2.0 New: Rugged Tote / Changed Cage Mounting Dimensions

“Tweaks” For The Experts

April 20, 2010

INTRODUCTION: This Construction Guide supersedes the EarthTainer I Guide. The reduced moisture flow design of the EarthTainer II WaterMizer is ideally suited for tomatoes, peppers, carrots, and nearly all vegetable crops. It now holds 20% additional potting mix to encourage more vigorous plant development.

Chapter One - Building the Base Unit

Chapter Two - Assembling the Self-supporting Cage System

Chapter Three - Filling the EarthTainer, Fertilizer and Planting

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Useful Tools and Accessories

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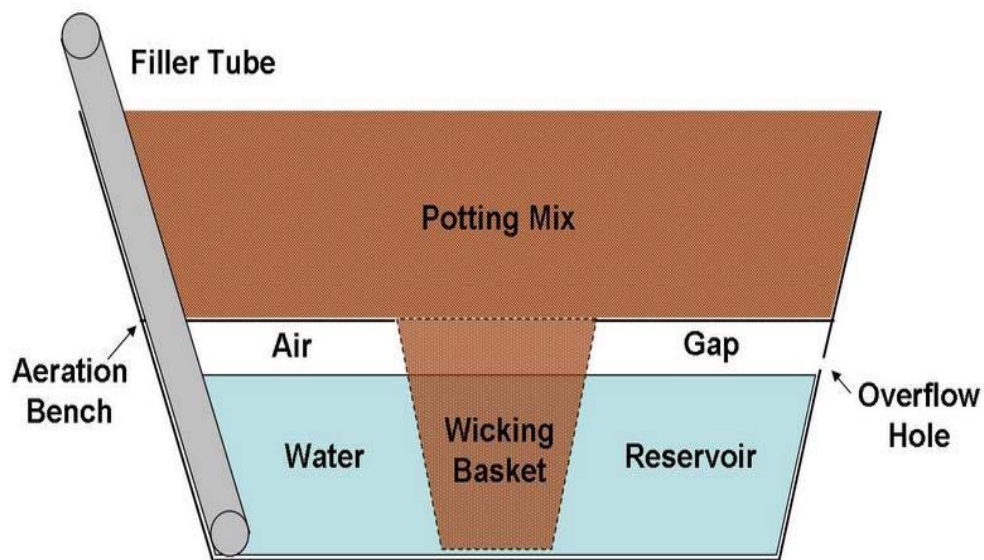
Please visit www.earthtainer.org from time to time, and follow the progress of EarthTainer growing and news events throughout the Season.

Overview

The basic principle of the EarthTainer™ dates back thousands of years when the Egyptians and others of that era employed “wicking” properties to craft oil lamps, and other moisture absorbing materials. This Law of Nature (capillary action) enables moisture to “defy the Laws of Gravity” and actually flow upward in a porous medium.

In the EarthTainer, a centralized wicking basket provides the “charge pump” to disperse water evenly throughout the potting mix chamber. An 8 gallon water reservoir coupled with a 3.3 cubic-foot potting mix capacity provides ample room to grow the largest varieties of tomatoes and other vegetables.

The innovative self-supporting dual cage system eliminates the hassles of building external trellis and stringing systems.



There are numerous advantages to EarthTainer gardening. Most important today is the water conservation properties of a 100% self-contained eco-system. Virtually no water is wasted growing weeds, or loss from water run-off. In a time of Statewide drought in many areas of the U.S., savings of up to 75% in water use reduction is significant, as compared with traditional in-ground gardening. The EarthTainer also provides urban gardeners the opportunity to now use patio and sunlit deck space to grow their own, quality organic vegetables.

As the soil in the EarthTainer typically warms up to planting temperature earlier than in-ground beds, the “early-bird” gardener can get ripe tomatoes much sooner in the season.

EarthTainer construction requires simple power and hand tools. It also requires a moderate degree of hand strength. Only attempt to build an EarthTainer if you have experienced skills with power and hand tools,

Cost of components for the Base Unit is approximately \$33.00. The self-supporting dual tomato cage system is approximately \$18.00 (when building multiple units at a time).

Chapter One - Building the Base Unit

With the goal of using commonly available components to fabricate the EarthTainer™, as well as having a stable finished unit that will remain upright even under windy conditions, a Rugged Tote 31 gallon container was selected as the base unit. Fully loaded with water and potting mix, the EarthTainer weighs approximately 130 pounds. While the EarthTainer design principles can be applied to smaller containers, stability will be negatively impacted. Light colored tan is recommended as it will be more resistant to absorbing the Sun's energy avoiding "cooking" the plant's root system. It is also recommended to install a sun block panel to prolong the life of the container.



The second key component used is an Aquatic Plant Basket to serve as the "wicking basket". The one selected is available from a number of aquarium stores and on-line websites. The EarthTainer II wicking basket uses a 5" diameter by 4" high basket. These are easily obtainable at Amazon or other on-line sites. As they are thin-walled, be careful when handling and do not crush them down as the thin plastic will break. (Support pieces will be described later). Do not use anything larger as the EarthTainer would run too moist, and waste water. Note: You can substitute an equivalent size Deli container, but drill numerous small holes in it to permit water to enter.



The EarthTainer is constructed from two 31 gallon Rugged Tote containers, one of which will be cut down to become the inverted "Aeration Bench" which is inserted into the base container.

Step 1: Lay the wicking basket alongside the Rugged Tote container, and with a marker draw a horizontal scribe line around the outside perimeter of the container. Hint: Tape the marker on the inverted wicking basket as this will create a mark 4 1/8" up from the bottom of the container. It is much easier to rotate the container around to make the cut mark doing this.



Step 2: Drill a 3/8" pilot hole at the midpoint of the line along the long side.

Step 3: Using a powered Saber-saw, begin cutting along the scribe line, completely around the circumference of the container. (Be EXTREMELY cautious with this step, always alert as to where your hands and legs are. Also, always wear glasses or safety goggles to protect your eyes).



If you do not have a powered Saber-saw, you may use a sturdy pair of kitchen scissors to manually cut the container along the scribe mark (this will require good hand strength).



Step 4: Note: If making more than one EarthTainer at a time, you can take up to 3 Aeration Benches and “pancake” them together for the next 8 steps. This significantly reduces the time of construction, as a single cut or drill-hole made once, can save repeating the process another 2 times.



Step 5: Locate the center of the Aeration Bench along the long length and mark it. Place a 4” round cardboard template on the approximate center of the dot. Draw a circle scribe around the cardboard template.



Step 6: Drill a single 3/8” pilot hole anywhere on the circle scribe line.

Step 7: Using a Saber-saw (or kitchen scissors) cut along the scribed line to create a 4” diameter opening

Step 8: Using a 3/16” drill-bit, drill a hole 1/2” to the left and right of the 4” opening

Step 9: Using a marker, place dots along the recessed surfaces of the Aeration Bench OUTSIDE the wicking basket border. Space staggered holes approximately 1” apart. Note: Exact placement is not essential.



Step 10: Using a 3/8” drill-bit or wood bore, drill out holes through each dot marking, then sand off any residue.



Step 11: With a 2" hole-saw, drill out the opening for the filler tube, centered along the short edge of the Aeration Bench.



Step 12: locate the mold's "ridge" all along the outer container top rim, and the mold's 4 nipple marks. Place a dot along the long ridge directly below the left nipple on the ridge. Then measure along the long ridge 8.5 inches to the right and place another dot, continue on for another 6 inches and place a dot. Remaining will be another 8.5 inches to the spot under the right nipple, and place a forth dot. Repeat along the long ridge on the other side of the Aeration Bench.



Using a 3/16" drill-bit, drill 8 holes for later use in mounting of the cage system. Exact placement is not critical.



Step 13: At this stage, cutting and drilling on the Aeration Bench is complete. If you pancaked multiple Aeration Bench units together, now separate them.

Step 14: Insert 2 zip ties through the uppermost slots in the wicking basket, directly opposite from each other
Note: there are two slits in the lip sidewall that make for good reference points for this step.



Step 15: With the Aeration bench flipped over, lay the wicking basket over the opening and pull the zip tie ends up through this opening. Then push the ends down through the two previously drilled 3/16" holes. Tighten zip ties and cut off excess.



Step 16: The Aeration Bench assembly is now complete; set this aside and next, make the following markings on the outer container. Place a dot with a marker centered on each short edge of the container (under the handles) 3 1/4" up from the bottom. This will be drilled later for the two "Overflow Holes".



Step 17: At the center of the 2 long sides of the container, mark a dot 3 3/4" up from the bottom. This is where the toggle bolts will be later installed to anchor the entire system together.



Step 18: Take the lid of one container, drill a 3/8" pilot hole; then use a Saber-saw (or kitchen scissors) to free-hand cut along the edges of the tabs on the underside. This piece will be used to clamp down the moisture barrier during the planting phase. Hint: as UV from the Sun will deteriorate the lid faster than the rest of the container, save the other lid cap to use in several years, as a replacement.



Step 19: Place the unused lid cutout in the bottom of the base container with the “Rugged Tote” name facing down (you may have to trim around the edges to have it properly seat in on the base. This serves as a “double bottom” distributing the weight of the wicking basket more evenly on the container bottom. Hint: you can use the second cut-out as a swivel base to go under the EarthTainer to make rotating it easier throughout the Season. Recommend 180 degree rotation every other month to produce optimum yields.



Step 20: Cut a section of 1½” Inside Diameter Schedule 40 (drinking-water safe) PVC pipe to a length of 19”.



Step 21: Approximately 1” up from the bottom, drill two 3/8” diameter holes through both sides of the pipe.



Step 22: Using a 10 foot section of 4” diameter PVC corrugated thin wall drain pipe, cut two 4 ¼” lengths. Sand off any rough edges. These two pieces will be used to provide support for the Aeration Bench during final assembly.



Step 23: Drill drain holes at both ends of each section.



Congratulations, you have now completed all the steps in Chapter One!

Chapter Two - Assembling the Self-supporting Cage System

In this Chapter, we will fabricate the self-supporting dual cage system. The goal was to construct a structurally rigid system, eliminating the need to fashion an external trellis or other such out-board support assembly. It is **CRUCIAL** that only very rugged tomato cages be used for this assembly. Cages found suitable are the 4-legged, 54" by 18" diameter "heavy duty" ones found at Walmart, Menards, etc. If you cannot purchase this cage made by Glamors Manufacturing which uses 3/16" diameter steel rod (or similar), you can build a cage system with thinner gauge 4-legged cages, but be cautious of collapse from heavy fruit loading.



Step 1: Straighten the legs of each of 2 cages so the legs are as vertical as possible; flip two cages over, then align the legs as best as possible in a straight line. Overlap the bottom hoops so that the next higher hoopsets meet.



Step 2: Using a 1/8" "Wire Rope Clip", securely attach the two hoopsets together.



Step 3: Carefully flip over the joined cages so they are now standing on their legs. Use 2 zip ties to join the top hoopsets together. This is meant to provide stability during the assembly process.



Step 4: Use a 30 gallon trash bag.



Step 5: Place the trash bag on a flat surface, then lift the joined cage unit and center it on the black plastic moisture barrier.

Step 6: While holding the legs of the cage, quickly pull the black plastic up “popping” it over each leg. Slide it up over the legs and temporarily bundle up with 4 clothespins to the first hoopset.



Step 7: Invert the cage system with the 8 legs upright. Put the cut-out lid frame, bottom-side up, over the legs and slide down until it is secured just below the second hoopset.



Step 8: Place a mark 1” down on all of the 8 legs.

Step 9: Fasten a 1/8” wire rope clip securely, with the top of the clip aligned with the 1” marking. Perform this on all 8 legs.



Step 10: Place a 3/16” by 1 1/4” Fender Washer on each of the 8 legs. Note: 1/4” hole diameter fender washers will also work. The objective is to distribute as much of the leg’s weight to the surface area of the Aeration Bench as possible.

Step 11: Flare out each of the legs from the vertical. Bend the legs out at the hoop where they are joined. You want a straight leg, not one that is arcing. Bend each leg pair out until there is a uniform spacing of approximately 14 inches between opposing leg tip pairs. (Exact distance is not critical).



Step 12: Place the inverted Aeration Bench on top of the legs, and working from one end to the other, insert each leg into the 8 holes previously drilled at the hard-points. Note: it is best if two people do this step.



Step 13: On 6 of the 8 legs, install 1/8" wire rope clips (on the 4 outer legs plus two of the diagonal inner legs). No fender washers are required on these "retaining" wire rope clips.

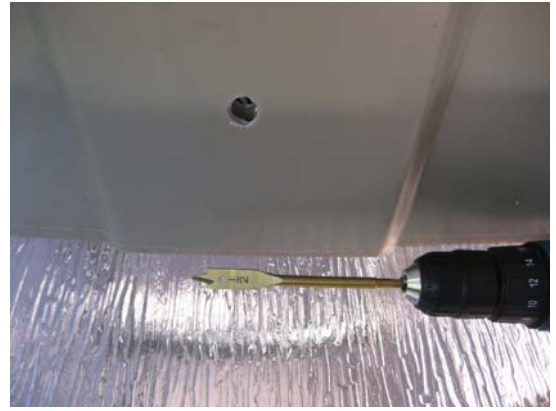


Step 14: Place the two 4" diameter sections of drain pipe inside the base of the EarthTainer, making sure you have installed the unused lid cut-out (Step 20 in Chapter One) and locate approximately as shown:

Slide the Aeration Bench Cage assembly down into the base unit until it comes to rest.



Step 15: While pushing down on the Aeration Bench, drill a 1/2" diameter hole at the center 3 3/4" mark on the container. **CAUTION: Be mindful of where your non-drilling hand is at all times, as you do NOT want to drill through it while holding down the Aeration Bench!** Repeat process for the other side.



Step 16: Insert a 3/16" by 2" toggle bolt (with fender washer) through the outer container, and into the Aeration Bench assembly. You may need to use a file to slightly enlarge the opening to accommodate the square shape of the toggle bolt. Hand tighten the toggle bolt screw (overtightening will cut into the inside surface of the Aeration Bench – use caution). Repeat for the other side.



Hint: to facilitate disassembly if ever needed, coat the screw threads with 3-in-1 Oil, Vaseline, or WD-40 before insertion into the container.



Step 17: As the Aeration Bench is now firmly secured to the outer container, use a 3/8" drill-bit to drill the Overflow hole at the previously marked 3 1/4" dot located under the handle. Repeat this step on other end.



Insert the 19" Filler Tube into Aeration Bench assembly.

Congratulations, you have now completed all the steps in Chapter Two. Your EarthTainer is now complete and ready for use!



Chapter Three - Filling the EarthTainer, Fertilizer and Planting

Container growing varies significantly from traditional in-ground in several areas. First, unlike conventional soil where worms and other insects provide “channels” for natural aeration, the growing media in container gardening requires a loose, porous mix to replicate the aeration process. Therefore, the choice of growing medium is extremely important. More experienced container gardeners make their own homemade mix. However, there are several choices of ready-made available at Lowes, Home Depot, or your local Nursery that will provide satisfactory results. The key is to select potting MIX, and not potting SOIL for container gardening.

I recommend Pro-Mix BX and alternatively, Sta-Green, available at Lowes. I found Miracle-Gro with Moisture Control retained too much moisture for a bottom-up wicking system such as the EarthTainer.



In addition, a phenomenon known as Blossom End Rot which is believed to be caused by a calcium deficiency, or uneven watering can afflict tomato plants grown in containers. The addition of Dolomite Lime (or Agricultural Lime) tends to inhibit BER from developing. (Note: NEVER use Hydrated Lime - - it is dangerous).



Locate the EarthTainer in an area of either full or moderate sun. Make sure the surface area is level. The overflow hole operation and wicking actions depend on a level surface. First, place the unused lid cut-out on the surface on which the EarthTainer will be placed. This both protects the EarthTainer bottom from sharp sticks or rocks as well as facilitates easier rotation of the EarthTainer during the Season for more symmetrical plant growth and fruit production.

Preparing your Growing Mix. Using a wheelbarrow, or plastic tote bucket, add in 4 scoops of Potting Mix, then add in 1 scoop of Perlite. Use breathing protection when working with Perlite as it is quite dusty and it should not be inhaled. Blend the mix together by stirring with your scoop. Repeat the process when filling successive layers in the EarthTainer.



Step 1: Fill the water reservoir until water flows out the overflow holes.

Step 2. Fill **only** the wicking basket with Potting Mix at this time. Pack firmly into the basket until water seeps up into the top of the mix. Make a 1” to 1.5” high “cupcake” mound of the Potting Mix **above** the wicking basket opening and thoroughly wet. This is VERY important to maintain wicking as the potting mix settles in the wicking basket over time. It is recommended to use Potting Mix only to fill the Wicking Basket, as “contact” through the Landscape Fabric for moisture transmission is vital.



Step 3: Installation of Landscape Fabric

To inhibit the roots from growing down into the water reservoir cut 2 pieces of 24 inch by 36 inch water permeable Landscape Fabric as a “bed liner” to go on top of the Aeration Bench. This will also make removal of the root ball much easier at the end of the season. Only use a premium quality product such as DuPont’s 15 year landscape fabric. Other inexpensive, cloth-type Landscape Fabrics will not prevent root penetration.



Step 3. Pre-cut slits for the cage legs, then inset two layers of Landscape Fabric. Temporarily affix the edges of the Fabric to the sides of the container with tape, if necessary to hold in place.

Note: Do not cut a slit or section of the fabric out over the wicking basket. The fabric is water permeable and moisture will easily flow through it into the potting mix above.



Step 4: Add a 2” layer of potting mix / Perlite combo into the EarthTainer, then saturate the layer with water. This is EXTREMELY important, as dry potting mix won’t wick water, and will not deliver moisture to the plant’s root system.



Step 5: Continue adding 2” layers of potting mix as above, saturating it with water. Don’t worry if you hit it with too much water, as the excess will drain out the Overflow hole.

Step 6: When you have filled the EarthTainer to within 4” from the top, sprinkle 3 cups of Dolomite Lime on the surface area, and add in 1 cup of E.B. Stone Sure Start fertilizer (or equivalent) at this time. Trowel in to a depth of approximately 6”. Continue to fill with the potting mix combo to the top. Water-in gently at this stage.



Step 7: Carve a 3” deep trench between the cage legs along the front of the EarthTainer’s outer cage legs. Spread one cup of organic fertilizer evenly between the 3 leg pairs. Cover the fertilizer strip with 2.5” depth of potting mix and pat down firmly. Move to the rear of the EarthTainer and repeat the same process along the rear legs with another 1 cup of fertilizer. Look for tomato fertilizers that have specially added micro-nutrients optimized for tomatoes. Avoid using fertilizers that are higher than 15-15-15, as they could “burn” the plants.



Step 8: Lower the black plastic moisture barrier, and clamp the lid down securely to the container, locking the moisture barrier in place. I find it best to let the wetted EarthTainer “stabilize” for at least 1 day before putting in the plants. This will reduce the moisture “shock” to the plants in letting the ‘Tainer drain off excess moisture accumulated from the filling process.



Step 9: Cut an “X” in the moisture barrier, directly under the center of each cage. Pull the edges of the 4 wedges back to expose the potting mix, then scoop out a small amount.



Step 10: Place the plant into the hole. Cover back with the removed potting mix, and fold the moisture barrier flaps back over, to minimize evaporation.

Later in the season as the Sun warms the black moisture barrier, cover it with bark fines, or other mulch to prevent over-heating.



Step 11: With scissors, cut away the excess “skirt” of the moisture barrier around the circumference of the EarthTainer (you *know* your Mother would make you do this Step!).



Floating Flag Level Indicator

NEVER let the EarthTainer run dry, as it would take several days to re-moisturize the entire wicking system. As an assist to determine water level in the reservoir, make a “floating flag” out of a 20” length of thin wire, attach a cork at one end. Take an aerosol can cap, drill a 1/8” hole through the middle and insert the float rod through the cap (this will reduce water evaporation and protect against entry of mosquitoes).



Chapter Four - (Optional) Cage Extension

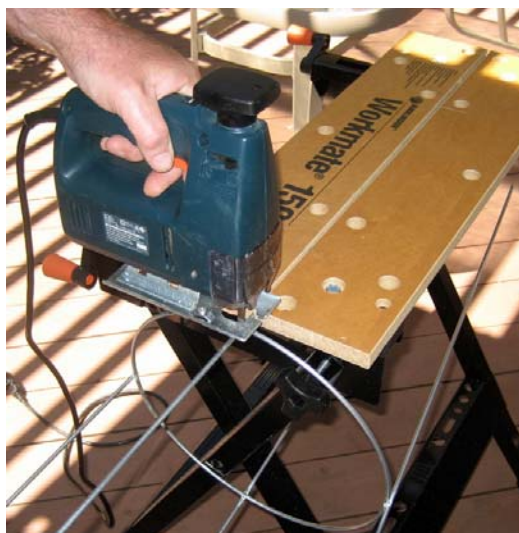
For many, the cage height of 43" above the moisture barrier will work well for most tomato varieties. Some however, such as Brandywine or Mortgage Lifter will be "headed for the sky" come mid-season. To add an additional 33" extension to the base cage providing a total of 6 ft. 4 inch height, construct the following:

Step 1. Use the same 54" by 18" diameter cage as used to build the base cage system.

Step 2: Clamp the legs, one at a time, in a vise.



Step 3: Cut off each leg below the first hoop using a Saber-saw or hacksaw.



Step 4: Just as with the original cage assembly, invert the cages, overlap the first hoopset, and use a 1/8" wire rope clip to secure the cages together at the second hoopset from the floor.



Step 5: Secure the 33" cage extension to the base cage assembly with 4 zip ties.



So that's all there is to it. After you build the initial one, it will take an average of 75 minutes per EarthTainer using the methods described above, from start to finish when constructing 3 at a time.

Enjoy the fruits of your labor!

Ray Newstead



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Appendix: Parts List and Tools

EarthTainer and Cage System:

2 Rugged Totes storage totes, 31 gal. ,light tan color – **Available at Lowes. Note: You can use other light color 30+ gallon containers, but be sure they are thick walled or you may experience early container failure.**

“PondLife” 5” diameter Aquatic plant basket from an Aquarium store or on-line at the Amazon.com

See: <http://www.thatpetplace.com/pet/prod/209728/product.web>

Also search for “Net Pot” on the web. Many Hydroponics stores stock the 5” diameter size too.

2 cable zip ties to hold wicking basket

1 1/2" ID Schedule 40 PVC pipe 19" long

2 sections of 4 1/4” length 4” diameter drain pipe (or alternative, such as plastic coffee containers)

2 tomato cages Glamos Wire 18"x54" Heavy Duty. Similar 3/16” heavy duty cages are also available at Navlts, Ace, Menards. Note: Be aware that large tomato cages sell out early in the season. Use lighter gauge 4-leg cages with caution.

15 ea 1/8" “Malleable” Wire Rope Clip. Don’t buy the expensive “Drop-forged” ones at H.D.

Go to Link for \$0.12 each, plus Shipping:

<http://www.pambinaimpex.com/servlet/Categories?category=Wire+Rope+Clips%3A1%2F8%22+clips>

10 ea 3/16 or 1/4" hole by 1 1/4" Fender Washers

2 zip ties

2 ea 3/16" by 2" toggle bolts

1 30 gallon trash bag

20" of coat hanger wire plus cork (wine)

aerosol can cap

24” by 36” 15 year DuPont Landscape Fabric material (sold in 3’ by 50’ rolls) \$14.00 at Lowes

Optional extra tall cage:

2 more tomato cages as above

1 ea 1/8" wire rope clamp

4 zip ties

Tools:

black Sharpie marker

1/2" bit, 3/8" bit, 3/16" bit, 1/8" bit

Saber saw

2" hole saw

Metal file or rasp

Socket driver for nuts on 1/8" Wire Rope Clamps

4 clothespins

scissors

Garden trowel / Potting Mix scoop

Planting Medium:

2.5 cu ft potting MIX (not SOIL), avoid brands with “Moisture Control” additives.

.8 cubic foot of Perlite

3 cups Dolomite Lime or Agricultural Lime – (Do NOT use Hydrated Lime)

3 cups organic fertilizer

End of Season Maintenance

Stop filling the water reservoir when the plant starts to die off. A few weeks later, lift up the lid and moisture barrier (cloths-pin the moisture barrier as when filling the "Tainer). Clip off all but 12" above the root and remove from the cage system. Then with a trowel dig in all around the plant about 5" from the stem. Grab the stem and lift out the root ball. With both tomato plants, you should be removing approximately 1 cubic foot of old Potting Mix. Then lower the moisture barrier and secure it in place with the lid.

Before it freezes, tilt the "Tainer up at a steep angle to drain as much of the water out of the reservoir overflow hole as possible. You don't need to disassemble it - - just keep rain from getting down into the reservoir that might freeze later in the Winter. Also, rotate the EarthTainer 180 degrees at the end of each Season as this will lessen the Sun's UV damage to the sides, and will prolong the useful life of the outer shell. Cover with a tarp if possible.

As the EarthTainer holds approximately 3 cubic ft. of mix, add 1 cubic ft. of new combo mix (4 parts Potting Mix with 1 part Perlite) in the Spring and thoroughly mix that in with the old mix. Also add 2 new cups of Dolomite Lime as well as 1 cup of Starter Fertilizer such as E. B. Stone Sure Start.

Next, add 2 cups of new Tomato fertilizer in two strips between the front and rear cage legs when planting the following season.



“Tweaks” For The Experts

While the 4:1 ratio of Potting Mix and Perlite works well as a general purpose EarthTainer combo mix, you may want to experiment with additional combo mix ingredients for the particular vegetable you are growing. For example, for Heirloom Tomatoes I have added a third ingredient known as “Bark Fines” (called “Groundcover Bark” at Home Depot) to minimize compaction and provide additional aeration for the root system.

My Combo Mix Trials have shown improved Tomato plant health and production using a 3:2:1 ratio of Potting Mix, Bark Fines (also called “Decorative Groundcover Bark”), and Perlite.



For Peppers, a 3:3:2 ratio of these same ingredients has produced superior results. Again, I encourage you to experiment given your own climate.

For the second and subsequent years in re-using the previous Combo Mix (5 year maximum is recommended), modify the one cubic ft. re-charge amount's ratio to **2 parts** Potting Mix, **3 parts** Bark Fines, and 1 part Perlite. Bark Fines (unlike Perlite) will decay over the course of the prior growing Season, so modifying the re-charge amounts will equalize out the total second Season ratio back to approximately 3:2:1. Be sure to thoroughly stir in the newly added 2:3:1 Combo Mix into the old Mix.



Automated Watering System (AWS) - optional

As tomato plants, corn, and other vegetables consume varying amounts of water during the growing season, anticipating a routine watering schedule is impractical. Also, for those who travel, go on vacation for an extended time period, etc. find an automated watering system (AWS) is highly desirable.

There are several commercially available devices such as mini-float valves that can be adapted for use with the EarthTainer. The advantage of a float valve is that it can be set up to feed from a gravity source such as a rain barrel, or elevated cistern.

Mounting details under the Aeration Bench and dimensions will be published in a future Revision of this Construction Guide.



A simpler to use alternative is to adapt the EarthBox Company's AWS to your EarthTainer. This is an ingenious product that employs a passive pneumatic diaphragm to close and open the valve to permit or restrict the flow of water. It requires hookup to a pressurized water source such as a standard home spigot.

It operates based upon Bernoulli's Principle whereby the rising water in the reservoir creates increasing pressure within an "air bell", and water will continue to flow through the AWS valve until pressure within the bell increases just enough to trip the pneumatic diaphragm to close, shutting off water flow.

Two simple modifications need to be made to the filler tube plus the tube connecting the bell to the AWS valve. First, take the 1.5" PVC filler tube previously installed in the EarthTainer (see Step 21) and cut its length down to 16". This filler tube will be used instead of the shorter filler tube that comes with the AWS.



Next, remove the 1/4" I.D. (3/8" O.D.) clear plastic tube that connects the air bell to the AWS valve. Hint: Cut the tube 1" from each end, then dip in a heated cup of water. After a few seconds of immersion, the old tube sections will easily slide off.

Reconnect a 13" section of new hose. This is common Ice Maker hose found at Home Depot or Lowes in 10 or 20 ft. sections. Reinstall the filler tube and insert the lengthened AWS unit into the EarthTainer. Connect the Pressure Regulator and tubing as per the supplied instructions.

You can purchase the AWS for single or multiple container installations directly from the EarthBox Company at their website:

<http://shop2.mailordercentral.com/EarthBox/products.asp?dept=16>



Useful Tools and Accessories for the EarthTainer

As the space under the first hoopset of the cage is rather tight, I use a heavy duty flour scoop to fill the 'Tainer with Potting Mix.

It is also helpful when transplanting seedlings as it can scoop out the mix surrounding the plant's root system.

Cost is about \$12.00 at most hardware and kitchen supply stores.

A trowel is also an essential tool in transplanting new seedlings.



As a “working” EarthTainer fully loaded with water weight about 130 pounds, tipping it over to empty out the water reservoir is a difficult process. I have found a neat, battery operated “Liquid Transfer Pump” that simply fits down the filler tube. Turn the “On” switch, and within 5 minutes all of the old water in the reservoir is pumped out. While the “service length” of the tube is 16”, it works well for those who have cut their filler tubes to 16” for the AWS system. For the longer filler tubes used with manual watering, you can carefully remove the tube and temporarily insert a 16” tube. Then use the Transfer Pump. Cost is about \$13.00 on Amazon.com



I am also impressed with the results I've had in adding an Organic Fungicide as a soil drench called Actinovate. It increased my plant vigor and yield on Snow Peas this Winter ('Tainer on the left treated with Actinovate, 'Tainer on the far right without Actinovate).

A product called “Serenade” works well as a Fungicide, if one is needed during the Season.

