



My name is Billy Blackburn. I am the creator/inventor of the EZ-CLONE cloning system and an owner of EZ-CLONE Enterprises Inc. First of all, I would like to say congratulations on the purchase of your new EZ-CLONE and thank you very much for your business and choosing us to fulfill your cloning needs.

The EZ-CLONE was specifically designed to simplify the plant cloning process and eliminate the need for daily maintenance. That being said, there are still a few technical advice questions that I regularly receive, so I am going to share with you exactly what I do to get the best possible results from start to finish. Please understand that this is specifically MY opinion. My formula for success is based on personal experience using the system that I designed, the gathering of information from others who have purchased and use our product, and feedback from other hydroponic industry experts. Please be aware that I understand there are numerous products on the market that may be used in conjunction with the EZ-CLONE cloning system to get good results. The products that I choose to use are simply my personal preference.

Sections Covered

- Assembly, Cleaning, and Unit Preparation
- Unit Placement
- Lighting
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- Taking Cuttings and Unit Insertion
- Water Temperature and Water Chillers
- Daily Maintenance
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Assembly, Cleaning, and Unit Preparation

After removing the unit from the packaging material and before starting assembly, I always do a quick rinse down of the lid and reservoir to remove any unwanted dust or debris that may have been caused by shipping. Next, assembly of the unit is very basic and takes just a few minutes. Follow the assembly instructions supplied in the unit. If for any reason the instructions were lost or missing from the package, please go to www.ezclone.com and click on assembly instructions.

Unit Placement

The unit can be placed on either the floor or up off the ground on any structure stable enough to hold it when filled with water. I prefer to set it on a sturdy plastic table or stand.

Lighting

The preferred lighting to use is a 2 or 4 foot dual fluorescent fixture. The 40 watt bulbs work best and this is a sufficient amount of light for the delicate cuttings. A 2 foot fixture works well over our 30 cutting unit and a 4 foot fixture supplies adequate coverage over our 60 and 120 cutting units. The light should be securely suspended over the unit and should be placed about 8-12 inches above the top of the cuttings.

Filling Reservoir, Additives, and PH

Next, with the manifold properly attached to the water pump and placed in the center of the reservoir, fill the reservoir with tap water or another source of quality water. Fill the unit until the water is just touching the very bottom of the misters, making sure not to cover them. This will ensure that there is the largest volume of water in the reservoir possible without hindering the operation of the manifold. Remember, the more water that's in the unit, the cooler the water will remain, and the more stable the ph level will be.

Note: Avoid using (distilled) water! It causes lack of progress and could prevent roots from forming at all. However, Reverse Osmosis water is usually fine. If you feel that the tap water in your area is too high in certain mineral content or has excessive chlorine, it's ok to use an RO system, but tap water in most areas is usually sufficient.

Next, I add my solutions. The first one is Dyna Gro's – ProTekt. This is a silica based solution that strengthens the cuttings from the inside out. It assists in building stronger cell walls, preventing the formation of bacteria and invading fungi, and helps with overall health and vigor. I add it at dilution rate of 1 teaspoon per gallon. In a large 120 cutting unit, this equates to be approximately 20 teaspoons. In a 60 cutting unit, it equates to 10 teaspoons, and in a 30 cutting unit, it equates to be about 5 teaspoons. Next, I add Dyna Gro's – KLN. This is added at the same dilution rate, 1 teaspoon per gallon. KLN is a liquid rooting hormone and is also full of vitamins and minerals.

After my solutions are added, I'll adjust the PH. Tap water is usually PH adjusted somewhere close to neutral or just above 7.0. After adding the Pro Tekt, it usually always causes an increase in PH, so the PH needs to be lowered with a PH down buffering solution. I've also noticed that even without additives of any kind, the PH of tap water will have a tendency to rise over the course of 24-48 hours. To compensate for this, I adjust my initial PH down to approximately 5.2 because I know the PH will slowly rise somewhere close to between 5.8 and 6.3. This is an acceptable range for getting quality results. I keep the closest eye on my PH during this time period between 24-48 hrs. If the PH needs to be adjusted again later on, do so, but it usually stables out after the first couple adjustments. If you are not sure if you've got an accurate PH reading, I highly recommend getting a quality digital PH meter. You should be using one of these for your feeding solutions in all stages of growth anyway.

Note: The additives I choose to use for the cloning process are NOT high in macronutrients. In other words, I am not adding nutrients that will feed the plants with high NPK levels. (N=Nitrogen, P=Phosphorus, and K=Potassium) Regular plant nutrients should be saved until the cuttings have developed an adequate root system. I know that some people choose to clone with light amounts of these nutrients, but in my experience, it takes the cutting longer to develop roots. The reason a cutting is growing roots to begin with is because it's in survival mode. It's searching for food. So, by adding nutrients to a cutting before it has developed a root structure or "a mouth" if you will, it's completely defeating the purpose. Save your nutrients until the plant needs them!

Taking Cuttings and Unit Insertion

Next, I start taking cuttings from my Mother or Donor plant. I prefer to take them directly from the Mom right before I'm ready to insert them into the unit. On the average, I take a 4 or 5 inch cutting and leave 2 to 4 leaves on the top. If the leaves are small, I don't trim them. If they are medium to large, I will trim half of each leaf off. The reason for this is because the cutting only requires a small leaf area to absorb a sufficient amount of light to keep it alive. Also, because the cutting does not have a root structure yet, the leaves are sustained by the amount of moisture that is held in the stem. If the leaves are smaller, the cutting does not have to work as hard to supply moisture to the leaves, which allows the cutting to focus its energy on "producing roots". It also has the added benefit of reducing the overall amount of leaf area on the top of the Cloner. This prevents some leaves from getting covered by others and makes for an overall friendlier environment.

As I take each cutting, I will cut it from the Mom with either a sharp razor blade or a quality pair of trimming shears. Make sure the cutting utensil is clean. It can be sterilized with isopropyl alcohol, a lighter, or both. I prefer both. I have heard multiple times that it's necessary for the cutting to be taken at a 45 degree angle. This is completely false. It does not matter. Just make sure the cut is clean and the bottom of the cutting is not mangled. Roots will form along the wall of the stem.

Also, I use EZ-CLONE Rooting Gel. After taking each cutting, I place the cutting inside the jar of gel and let it sit there until I have taken approximately 8 cuttings. This means I have 8 cuttings soaking up the gel. I pull them out one at a time, insert each cutting into a New Neoprene Collar and place the collar into the unit. In a 120 unit, there are 15 rows of 8. This is why I take 8 cuttings at a time. I prefer to fill up a row, take 8 more cuttings, fill up another row, and continue that pattern until the lid is full.

Although the neoprene collars can be reused, I highly recommend using new collars every time you clone instead of trying to clean the previously used ones. When the collars are used, they can get slime in the pores, cracks, and creases from various types of additives and I think it's a bit difficult to guarantee they get totally clean. I would rather spend the few bucks for new collars and not have to worry about potentially getting any bad bacteria due the old collars not being cleaned properly.

It is also important to let you know that I do not turn the water pump on until I have the entire unit full of cuttings and have ph balanced the water. It usually takes about an hour to take 120 cuttings and insert them into the lid. During this time, the cuttings are still absorbing the gel and an hour is not too long to wait before turning on the water pump. The clones usually will not wilt within this hour time period, but if you do get some minor wilting, after you plug the pump in, the clones will perk right back up.

Water Temperature and Water Chillers

IMPORTANT!! - Ok, now it's time for water temperature. As with most aeroponic and hydroponic systems, the EZ-CLONE was designed to be used indoors or in a temperature controlled environment. When I was creating and first started using the EZ-CLONE, I noticed that if my water temperature was getting over 80 degrees in the reservoir, the cuttings were prone to developing harmful bacteria. This was usually in the form of a grayish-brown slime, and if not treated quickly, would kill all of my cuttings. That being said, it didn't take me very long to figure out that during warm periods of the year, I had to keep the unit in an air-conditioned room or find another way of keeping my water at a suitable temperature. My focus was keeping my water as close to 70 degrees as possible. This is where I was seeing the best results and as long as I was cleaning the unit properly in between uses, my results were very good, usually between 95-100%.

In an attempt to further the output of the cloning system during hot times of the year and achieve more consistent results, I decided to try using a Water Chiller. These allow you to cool the water down considerably without having to place the Cloner in an air-conditioned room. I thought about how much energy was consumed by running an air conditioner in comparison to the amount of energy used by the Water Chiller. Although a good quality Water Chiller is a few hundred bucks, it does use considerably less electricity and it applies the cold water directly to the unit as opposed to trying to cool the air around it. The amount of money that you save in air conditioning costs pays for the Water Chiller in no time at all. It's well worth the investment!

Anyway, I now use a Water Chiller instead of air conditioning. I set the Chiller temperature at 68 degrees and I get better results than I've ever seen. The cuttings root within 5-7 days, look absolutely beautiful, and are able to be pulled from the unit in 10-14 days with about 100% success.

Daily Maintenance

One of the most valuable benefits of using the EZ-CLONE is that it is designed to plug in and let it do its thing. My time is very valuable and I wanted something to work "for me" not the other way around. My experience with conventional methods of cloning (putting the cuttings into various mediums and under humidity domes) was less than successful. Results were sporadic and I never liked the fact that the cuttings had to be babysat and sprayed with water regularly to keep them from drying out. I'm always proud when people tell me that they filled up their EZ-CLONE, went on vacation, and when they came back, had beautiful healthy roots. THAT is what the product is designed to do!

Transplanting

Another major benefit to the EZ-CLONE is that your cuttings are developing roots aeroponically and are not surrounded by any particular growing medium before they're ready to transplant. This allows you to remove the cuttings from the unit and the freedom to place them into soil, soilless mixes, rockwool, hydroton (clay rocks), coco fiber, pure organic mixes, or to go straight into larger aeroponic or hydroponic systems. It's very versatile.

Humidity Domes???

The EZ-CLONE was originally created without a humidity dome specifically because it is NOT necessary. Conventional methods of cloning require domes to keep the medium and clones from drying out too quickly. They also require the grower to keep a constant eye on the cuttings to make sure they don't wilt and die. The inner workings of an EZ-CLONE provide the perfect environment for rapid root growth. Because the EZ-CLONE gives the cuttings a constant aeroponic mist of solution from inside the unit, being concerned with the cuttings drying out is never an issue. Also, when cuttings are rooted under domes and the domes are removed for transplanting, the cuttings go through a period of shock and can often die. Another benefit to cloning without a humidity dome is that it allows the cuttings to transpire and breathe naturally and much more efficiently. This drastically reduces the chance of creating "too much" humidity and attracting harmful airborne fungi such as powdery mildew. The companies out there who have attempted to copy our design and include a humidity dome are simply trying to fool the end consumer into believing that the dome is necessary. Leave the domes off! It's better for the plants.

Cleaning Between Uses

To keep your EZ-CLONE and all your hydroponic equipment functioning at its peak performance requires proper cleaning techniques in between uses. The EZ-CLONE is very simple to clean and can be done very quickly. After a successful cloning cycle, empty the water from the reservoir. The smaller 30 and 60 cutting units can usually be placed in a standard size bathtub. The 120 unit usually needs to be placed on the ground somewhere with easy access. You may want to do this outside if you don't have a bathtub large enough to clean the 120 unit in.

I prefer to fill the used empty reservoir up with hot water completely to the top. If hot water is not available, cold water will work just fine. I'll then add 1 cup of standard bleach to a 30 size unit, 2 cups to a 60 unit, and 3 cups to a 120 unit. Next, I'll quickly unscrew the misters out of the manifold and I'll place my water pump with the manifold attached directly in the center of the reservoir and plug it in. NOTE: I unscrew the misters to take extra precaution and to flush out any possible root mass or slime that may have attached to the manifold threads. At this point the pump and manifold are completely submerged and the hot bleach water is being pushed through both of them, sterilizing the unit. Next, I'll place the misters and all airlines in the bleach water at the bottom of the reservoir also. After letting the unit run in the hot bleach water for approximately 20 minutes, I'll pull the pump, manifold, misters, and air tubing out. If the water is too hot, a small fish net works well for scooping them up.

I'll then take a scrub brush approximately 2 feet in length (toilet brushes work great) and scrub down the walls of the reservoir, put the lid upside down in the reservoir, and scrub down the inside and outside of the lid. Empty the bleach water and THOROUGHLY rinse all parts with clean water and you're ready for a new cloning cycle. Remember...if you're reusing the neoprene collars instead of using new ones, they can be thrown in the bleach water and rinsed as well. Also be careful not to wear any nice clothes as the bleach water may stain them.

I hope this helps everyone who owns an EZ-CLONE and THANK YOU again for your business and support. KEEP GROWIN!!!