SUCCESSFUL **CLONING** with a Tray and Dome

Suggested Items:*

- **Nursery Tray & Dome** – 10" x 20" Tray w/ 7" dome and insert
- **Seedling Heat Mat** – 10" x 20" *Thermostat available
- **Glass Thermometer** – Aquarium type
- **Root Riot or Rockwool Plugs** – Root Riot is a ready-to-use plug formed from composted organic materials and are inoculated with micro nutrients and biologically active ingredients. Rockwool is very popular and is derived from spun rock. It is all natural, but requires pre-treating with a pH down solution.
- **pH Up & pH Down** – For adjusting the pH of your water. Soil 6.3-6.6/Hydro 5.8-6.1.
- **pH Testers/Meters** – pH testers can range from cheap paper strips or shakers to digital meters with remote probes.
- **Clonex Rooting Hormone Gel**– Strong Cloning gel that works like a champ. It remains in contact around the stem, sealing the cut tissue and supplying the hormones needed to promote roots and vitamins to protect the delicate new root tissue.
- **H16 Roots** – Heavy 16 Roots is an excellent root promoter and stress reliever. Only use on clones once they have roots formed.
- **Liquid Karma** – Soluble blend of ascophylum nodosum (North Atlantic Sea Kelp,) humic acid, fulvic acid, carbohydrates, fermented soy proteins, and other organic good stuff. Promotes new root growth.
- **LED Clone Strip**

**You don't need every item listed above. We recognize that there is more than one way to clone, and you can do it any way you want, but this is what has worked well for us.*

Taking Clones

Take cutting at one of the plant's lower branches. The cut should be at a 45º angle and measure no shorter than 3 inches in length. Remove the lowest branch point or leaf from your cutting. This branch point or fan leaf site that you removed provides site for further root initiation. At least one branch point or "fan leaf" should also remain up topside, right below the developing shoot (lateral meristem). Dip cutting into rooting hormones such as **Clonex Gel** and place in rockwool cubes ensuring that node (where you removed the branch point or leaf) is buried beneath the rockwool. Immediately apply foliar mix (described below).

Tray and Dome Technique

Water rockwool cubes in solution of 5.0—5.5 pH. Fill grooves of tray only with pH'ed water. Ensure this level remains consistent while cuttings develop roots. Foliar spray with **Liquid Karma** at 1 tsp/Gallon immediately after cuttings are placed in dome. This will be the only time a foliar spray is applied to the plants. Initially, adjust temperature in conjunction with thermostat at 82º but no more than 86º between rockwool cubes in dome. (A thermometer is used to gauge temperature within dome between rockwool cubes—failure to maintain this range will produce poor results.) You will know the desired humidity levels have been reached once condensation has formed at least five inches up the dome. Lock in temperature at this point. (Ex: If desired humidity is achieved at 84º, this is where you want to keep the temperature while cutting develops roots.) At same time everyday, take off dome and shake out the stale, moist air. Ensure that this is the same time everyday. The solution in trays is responsible for condensation that produces humidity in the dome which is imperative to this method of cloning. Spray interior of dome if humidity is not forming as desired. If you have to spray the interior of the dome you are doing something wrong. Your temperature is probably wrong or you do not have enough water at the base of the tray. Make sure cubes are not over-saturated with water! Be sure cubes DO NOT dry out. 3-5 days after first soaking the cubes will need to be watered again. Water with 500ppms of bloom nutrient at 6.0 pH. Within 5-14 days cuttings will be ready for transplant. Harden them off properly.

Hardening Cuttings

Once clones are rooted, (and roots have emerged from the cubes) begin to harden cuttings. This process begins with the removal of the humidity dome. Make sure to spray cuttings with either pure water or water mixed with **Liquid Karma** (1tsp./Gal.). If at any point cuttings begin to wilt, put humidity dome back on and try again after cuttings have straightened back out and look good again. Increase the interval between sprays. Decrease the frequency between sprays. (Ex. Spray every 10-20 mins. at first then every 20-30 mins. then every 30-45 mins. then again in an hour. By then plants should be adjusted. If the plants wilt, usually spraying is enough to bring them back. If not put the dome back on.)

Please Note: *As soon as healthy new roots have formed it is important to remove dome to prevent mold forming.*

SUCCESSFUL **CLONING** with an Aero-Cloner

Suggested Items:*

- **EZ-Clone Classic** – Our aero-cloner of choice. Comes in the following sizes: 16, 32, 64, and 128 units.
- **Clear Rez**– pH balanced water treatment that keeps your system running clean! Can be used throughout all stages of the cloning process and allows for higher water temperatures to be maintained.
- **Clonex Rooting Hormone Gel**– Strong cloning gel that works like a champ. It remains in contact around the stem, sealing the cut tissue and supplying the hormones needed to promote roots and vitamins to protect the delicate new root tissue.
- **H16 Roots** – Heavy 16 Roots is an excellent root promoter and stress reliever. Only use on clones once they have roots formed.
- **Liquid Karma** – Soluble blend of ascophylum nodosum (North Atlantic Sea Kelp,) humic acid, fulvic acid, carbohydrates, fermented soy proteins, and other organic good stuff. Promotes new root growth.
- **Hygrozyme** – Builds up and fortifies root growth as well as boosts up most plant metabolic processes and help with increasing yield.
- **LED Clone Strip**

**You don't need every item listed above. We recognize that there is more than one way to clone, and you can do it any way you want, but this is what has worked well for us.*

Taking Clones

Take cutting at one of plant's lower branches. The cut should be at a 45º angle and measure no shorter than 3 inches in length. Remove the lowest branch point or leaf from your cutting. This branch point or fan leaf site that you removed provides site for root initiation. You can also "scar" (make small little nicks with a razor blade) along the length of the lower stalk - to insure more rooting hormone absorption and further rooting from the "scared" areas. At least one branch point or "fan leaf" should also remain up topside, right below the developing shoot (lateral meristem). Dip cutting into **Clonex Gel** and place in neoprene inserts within your aero-cloner ensuring that the node (where you removed the branch point or leaf) is safely below the neoprene insert and dangling into the machine. Immediately apply foliar mix.

Aero-Cloner Technique

Fill up the aero-cloner with purified water pH'd to 6.3. Add Clear Rez at the rate of 1 oz/5 gallons. Do not add any nutrient or additives at this time. It is however extremely important to keep the water temperature at 75-76º F. This will insure a good amount of oxygen is contained within the water / spraying solution.

People who have bad results with aero-cloners usually have allowed their water temperatures to get too hot. This can be a BIG problem for users of these units. Adding Clear Rez throughout the process can help fight off pathogens and bacteria growth due to high temps. But if keeping water temperature cool enough is still an issue, there are 3 options:

1. **Remove the pump from the aero-cloner making it operate externally (make an accessory "manifold" out of PVC parts, bulkheads, and tubing.) Since the pump is the primary heat source, temps. will lower.**
2. **Lower the ambient temperature in the room itself. This will in turn lower the water temperature. Usually 70º F. within the space itself is the ideal temperature for this application.**
3. **Assemble and attach a water chiller to the aero-cloner unit. This is the best option, but also the most expensive. It can double the cost (if not more) of the original unit, but yields the best control.**

Run the aero-cloner constantly. After "nubs" (little pimple like spots/abrasions along the lower half of the stalk—the beginnings of root formation-spots where roots will be coming out from) have formed (3-6 days) add **Heavy 16 Roots** to the mix at the rate of 1mL/Gallon of water within the aero-cloner. Assume some of the water has evaporated—meaning you have less water in the cloner than when you originally started. The **Heavy 16 Roots** will help to blow the roots out and finish the process. After the roots come out we also add **Hygrozyme** at a rate of 5mL/Gallon to the solution as well. As soon as you have some healthy roots on all of your cuttings, immediately transplant them into their new medium (rockwool, soil, coco, hydrocorn, etc.). Do this as soon as "good" roots have formed to prevent stress on the plants from moving them between one type of system (the aero-cloner) to another type (wherever they are going). When you transplant them to their new resting place, we suggest using a stress relieving product like **Heavy 16 Roots** and/or **Rhizotonic**. Also: Spray with pure water or with a solution of **Liquid Karma** 1tsp./Gallon to help ease the transitional "stress" on the plants. If you do this procedure correctly your cuttings will immediately start to grow after the transplantation to the new medium is over.