VERSAPONIC® GROW SYSTEM
OWNERS MANUAL

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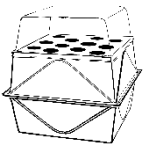
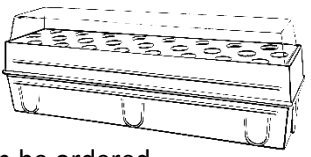
OVERVIEW OF KITS

Garden Starter Kits



The Garden Starter is a 12-site garden or a 25 site cloner. Whether you want to use it as a herb garden or to have your own private lettuce farm it fits nicely in any area of your home and collapses for storage when not in use. Growing your own food has never been so convenient and you can do it year-round with an indoor garden!

Grow Row Kits



Get an early start on your garden or use it as your garden, the Grow Row has you covered. This is a perfect shelf size unit and it can be ordered with a 16, 25, or 45 site grow top depending upon what you intend to grow.

Grow Pro Series & Grow Rack Systems

Designed for hobby farmers and gardeners who are starting from seeds or clones. We can help those who wish to get their garden started off strong or grow crops of lettuce and herbs. Growing takes place on three shelves in about a 26" by 46" footprint.

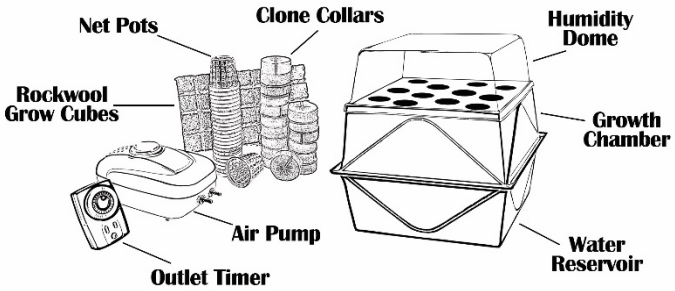
KIT ASSEMBLY & COMPONENTS

The kit will arrive collapsed, as it should be stored when not in use. It is strongly suggested that a pre-rinse clean be performed before the process of growing is started. Separate the pieces and identify the large tray with no grow sites and place it into position. This is the base and reservoir which will be filled approximately ¾ full of water.

Next, insert the Venturiponic® Emitters into the float and place the Emitter assembly into the water and connect the pump (if there are more emitters than pump outlets, the included T-connector will be required).

Now, place the propagation lid onto the base making sure to route the hoses and/or cord through the separation (for a cleaner look - drill a hole for each airline to pass through). The cloning collars can be placed directly into the sites or can alternately go into the net pots, which will drop into a site.

COMPONENTS



PLACEMENT

System placement is very important. Each kit needs to be placed on a stable structure that is strong enough to hold when filled with water. Countertops, floors, and sturdy tables work well as placements.

HUMIDITY DOME

Humidity domes are used on clones to allow the humidity to be steady, and to make sure cuttings do no dry out. It requires a constant eye to make sure your cuttings do not wilt and die. When it's time to transport cuttings, make sure they are given enough time to adjust to the ambient air. Moving cuttings too quickly can put them in shock, which could lead to the loss of the cuttings.

PROPER LIGHTING

Make sure to put the lighting system on a timer so that the lights come on and go off at the same time each day. Keeping lights on a set schedule provides consistency to the plant during its growing process.

When cloning or starting from seeds a 105-watt 6500 kelvin light bulb, T5 florescent, or an LED should be used. It should be on for 18-24 hrs per day and placed approximately 8-12 inches from the grow area.

Once grown to the vegetative stage the lighting needs to increase to a 400-600-watt 5000 kelvin or an LED. For this stage most plants need 14-18 hrs of light per day and should be placed approximately 4-5 feet from the plants to allow them to grow.

The next step is the bloom state, which requires the lighting system to be at a 1100-watt 4700 kelvin. During this stage most plants require 12 hours of light and 12 hours of darkness each day.

WATER, ADDITIVES, AND PH

Once the kit is properly assembled and the water pump is placed in the middle of the reservoir, the reservoir can be carefully filled with water all the way to the bottom of the emitters. Be careful not to fill with water over the emitters, as it could result in hindering the operation of the system. The proper amount of water will allow temperature to be maintained, resulting in a more stable pH level.

Once the reservoir is filled with water add your preference of nutrient solution to the water. You will need to follow the solution directions that are located on the back of the bottle or box that is provided when purchasing solution. Any time solution is added it is necessary to check the pH level.

There are two options when tending to the pH level and having a pH meter will really help with detecting what the pH levels are throughout all stages of growth.

1. Since the pH level tends to rise over the course of 24-48 hours, keep an eye on the water

until the pH is consistent. A consistent and quality level is between 5.8 and 6.2.

2. Reduce the pH level down to about 5.2 and it will slowly rise to between 5.8 and 6.2 over the 24-48-hour period.

WATER MAINTENANCE

Water quality is very important, the water must be able to deliver dissolved nutrients to plants. If the levels of mineral salt are too high, then it is unable to dissolve the nutrients your plant needs. Also, if the pH level is not between 5.8 and 6.2, nutrients will not be able to dissolve adequately. Chemicals can be used to adjust the pH into the ideal range. Normal water temperature should be in the range between 65 degrees and 80 degrees to keep the plants thriving.

DAILY MAINTENANCE

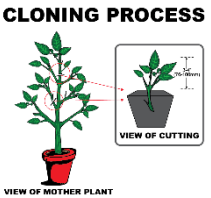
For the most part the system does all the work, but there is still some daily maintenance that should be done. Periodically check to make sure that the system is performing properly. Make sure it's not flooding the plants, or not getting enough water to the plants. This can happen if tubing is clogged. Due to water now being run through the pump, the level should maintain at slightly below the level at which it was originally filled at the beginning of the first cycle. If water has evaporated, carefully add more. Make sure to not add more nutrient solution as this could overpower the growing process and kill what has already grown. Also, remember to maintain temperature and ensure it's not fluctuating.

STARTING SEEDS

Seeds can be started in a coco or peat plug or in a rockwool cube. These are good at balancing moisture and oxygen, which provides a perfect middle ground to prevent over-watering or under-watering. Coco and peat have very little nutrition and rockwool alone has no naturally occurring nutrition, so once the seed has formed roots it depends totally on the nutrient solution.

TAKING CUTTINGS

Stem cuttings are by far the most common type of cutting that growers take. It involves removing some stem from a plant that contains a healthy growth tip. For this example, tomatoes are used, but this method could easily apply to virtually all softwood plants; however, it is highly recommended that research be done on the particular plant which cuttings are being taken from.



Step 1: Take a clean scalpel or a very sharp knife and remove a healthy-looking branch from the mother plant. The branch must contain at least one growth tip (i.e. the point from which new leaves and shoot emerge.) The sharper the blade, the cleaner the cut and the less tissue damage around it-meaning less chance of disease.

Step 2: Remove any excess stem. Many grow guides state to take a cutting at a 45-degree angle, to increase

the surface area of the exposed cutting to rooting stimulators; however, this really is not necessary! Performance Grow recommends a 'square cut' and quartering the tip, which will provide more uptake of the rooting hormone.

Step 3: Remove any excessive foliage. The more foliage on the cutting, the more 'life' it must support. It makes sense, therefore, to remove any excessive foliage. Yes, some growth needs to remain but remember to only use small, manageable cuttings that aren't going to crowd out the propagator or cloning machine. Trim the tips of larger leaves so that the cutting is no larger than the space it is going to be given. Also, make sure that small cuttings don't overlap each other too much, this significantly reduces the risk of mold.

Most growers aim for cuttings between three and five inches from top to bottom. The next step is to dip the cutting into some rooting stimulator. Though rooting simulator is not essential, rooting times will be shorter, and the chance of mold or stem rot will decrease. Several compounds can be used to promote the formation of roots. They work by signaling the activity of plant hormone auxins. Among the commonly used chemicals is indole-3-butyric acid (IBA) used as a powder, liquid solution or gel. Pour a small amount of the rooting into a shot glass or shallow bowl and dip into that. The blade and bowl will need to be cleaned regularly, particularly if taking cuttings from more than one mother plant.

Step 4: It's time to fire up the cloning machine! A timely word of advice: it's important not to dawdle when taking cuttings! Remember, every second counts. After all, if a cutting is left on the kitchen table, it will dehydrate and be well on the way to dying in a matter of minutes. The sooner a cutting is placed in a propagator or cloning machine, the better. Preparation is key, especially if many cuttings are being taken.

TRANSPLANTING

When the emergence of more secondary roots and root hairs occur, it is a sure sign that cuttings are developed enough to handle life outside of the cloning machine. Don't worry if the next stage is not set yet, the cuttings will be quite happy to bathe in their nutrient mist for days, even weeks if required! Just be sure to change out the nutrients once a week and keep an eye on pH levels. If roots become very long, they can always be trimmed - they won't mind!

One common question about aeroponic clones is how to handle transplanting them into a pot of loose-fill media or hydroponic system. For instance, there is a common myth that aeroponic clones don't do well in soil or coco coir. This is simply not the case. Ensure the chosen media is at room temperature and adequately moist. Also, remember roots hate light, so be kind to the cuttings and transplant them away from bright lights. Partially fill the pot with media, make a hole just big enough to insert the

rooted cutting, and gently back fill around it so all the roots are covered, and the cutting is well supported. They will need a few days to adjust, so try to keep them under the same stable lighting.

CLEANING BETWEEN USES

This system requires proper care between uses for it to function at its peak performance. After a successful cloning cycle simply empty the water from the reservoir. Water and a soft cloth can be used to clean the system. Do not use any abrasive scrubbers, as they will leave tiny scratches which will promote bacteria growth. To start the cleaning process, remove all the cuttings, pumps, emitters, cloning collars, and water. Then, re-fill your reservoir with fresh water and wipe clean with a cloth. Also, make any and all the debris is cleaned out of the emitters. Once all parts are clean soak your emitters in a cup water and allow them to sit 20 minutes. Place cloning collars in a five-gallon bucket filled with fresh hot water. To help keep cloning collars submerged place a bucket with holes inside the previously filled bucket. This is only necessary if you are reusing your cloning collars. Place the pump without the emitters back in the center of the reservoir. Cycle the pump for at least 20 minutes with the fresh water to ensure everything gets properly rinsed. Once the system is clean the next cycle can grow cycle can start!

OUR PRODUCTS & SERVICES

Performance Grow Versaponic® Kits Available in the following sizes:

ITEM	Description
SD950-12	Garden Starter 12
SD950-25	Garden Starter 25 Cloner
SD951-16	Grow Row 16
SD951-25	Grow Row 25
SD951-45	Grow Row 45
SD951-16BATO	Grow Row 3-Bucket Drip System
SD924-72K	Grow Pro 72
SD924-200K	Grow Pro 200
SD924-8BATO	Grow Pro 8-Bucket Drip System
SD957-96R	Grow Rack 96
SD957-270R	Grow Rack 270
SD957-600R	Grow Rack 600

MORE RESOURCES & FURTHER EDUCATION

To learn more about hydroponics, Performance Grow systems, and other topics visit performancegrow.com to view our curated library of videos, blog posts and links.

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