

PRODUCT USAGE INSTRUCTIONS

OASIS® GROWER SOLUTIONS HORTICUBES®

DESCRIPTION

Horticubes® is specially engineered for seed propagation of hydroponic leafy greens and vegetables. The following are the general instructions to produce strong and vigorous young plants.

STEP 1: REMOVE FROM CARTON

Gently pull the paper sleeve surrounding the five sheets of Horticubes®, or carefully pull the cardboard liner that surrounds all 20 sheets.

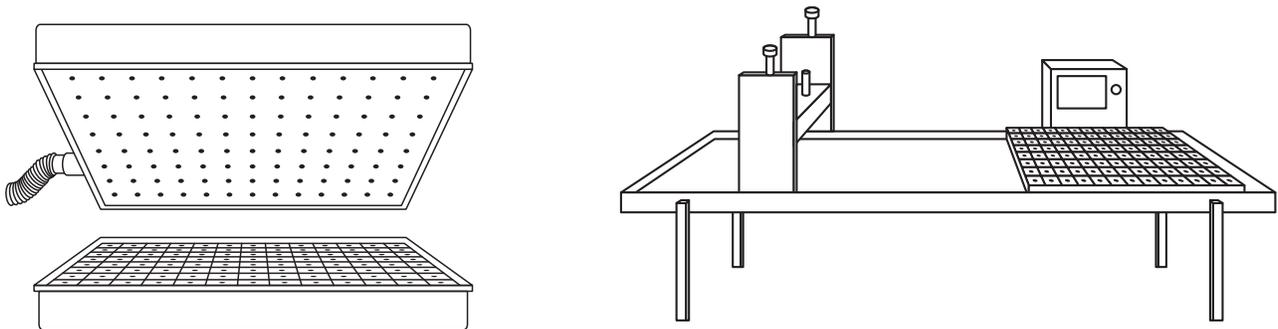
STEP 2: PLACE INTO INDUSTRY STANDARD 1020 CARRY TRAYS

If your primary watering method uses overhead irrigation, use a solid-bottom tray with drain holes. However, if your primary method uses sub-irrigation, use a web-bottom tray.

NOTE: DO NOT use a solid tray without drain holes because excess water needs to be drained freely.

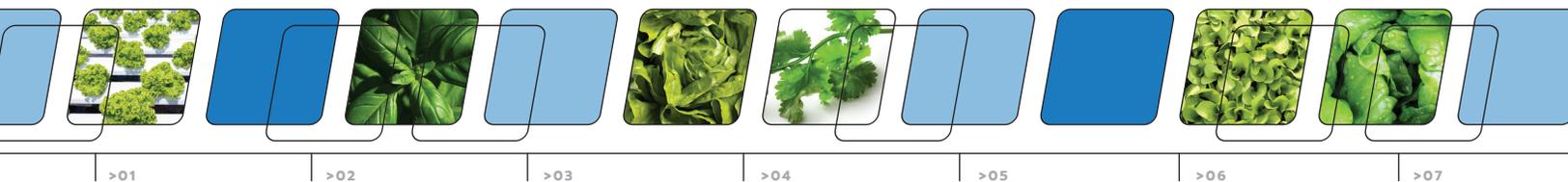
STEP 3: PLACE SEED(S) IN DIBBLE HOLE

Seeds can be placed via automated equipment (vacuum or drum seeder) or manually in the single- or multi-seed dibble when the substrate is either dry or wet.



STEP 4: SATURATE WITH OASIS® 16-4-17 FERTILIZER OR SIMILAR NUTRIENT PACKAGE

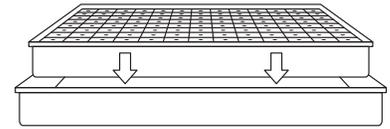
For best results, the Horticubes® should be fully saturated with complete nutrient solution (100 to 125 ppm N), such as OASIS® 16-4-17 Fertilizer with first watering. Thorough saturation without any dry spots can be accomplished through a combination of soaking followed by overhead watering.



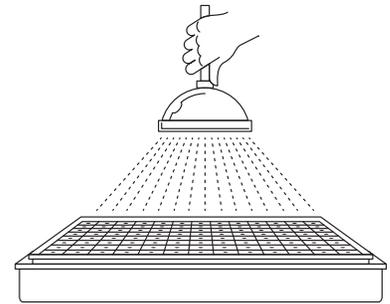
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SATURATING MANUALLY

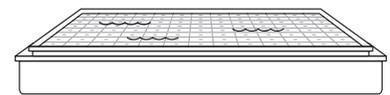
Set the primary carrier tray (with drain holes or web bottom) containing the Horticultures® into a secondary solid bottom 1020 tray without drain holes.



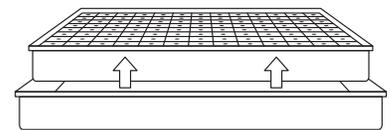
Using a hose and a coarse water breaker, irrigate uniformly over the Horticultures® to completely soak the foam substrate.



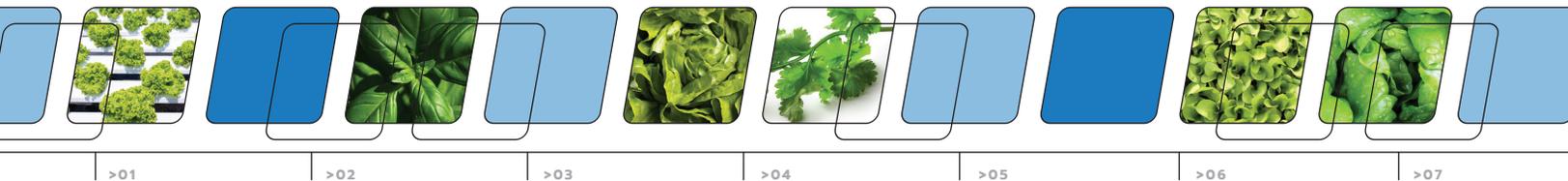
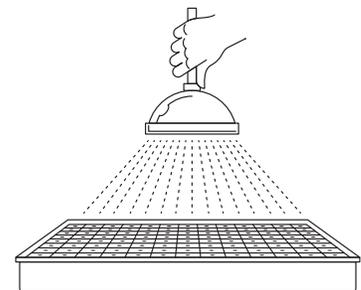
You will require approximately 7.5 L (2 GAL) of nutrient solution to totally soak the foam substrate.



After 2-5 minutes, let the excess drain out freely by removing the primary tray containing Horticultures® out of the secondary tray and setting it on greenhouse bench.

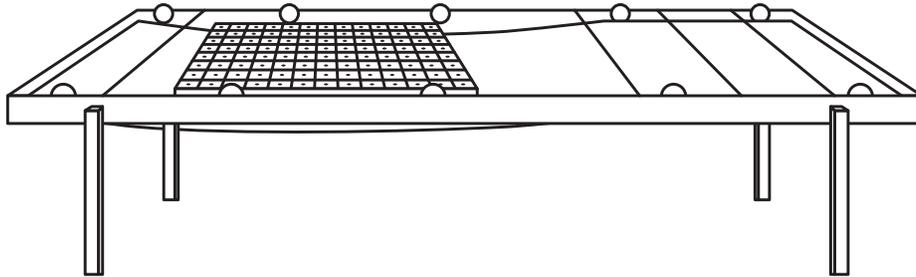


Overhead irrigate the substrate uniformly using a coarse water breaker for 30 sec to 1 min with 5 L (1.5 GAL) of nutrient solution. This procedure will allow the substrate to take on the pH and EC of the nutrient solution.



SATURATING USING A WATER CONVEYER SYSTEM

Initial watering with complete nutrient solution can also be achieved by using a conveyor system which has both sub-irrigation and overhead irrigation nozzles.



STEP 5: VERMICULITE TOP DRESSING

Vermiculite top dressing is not required with lettuce and few other herbs like basil, watercress, arugula, etc. However, in certain crops like kale, cilantro, and spinach vermiculite top dressing promotes uniform germination and growth.

STEP 6: GERMINATION

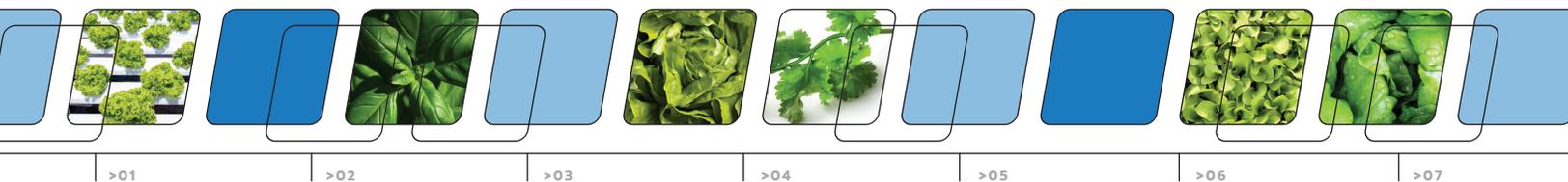
Cover or place Horticubes® in a dark area at temperatures around 20° C (68° F). Move the substrate into the nursery at 48 hours after initiation of the germination process and place on a level surface. If trays are left in darkness longer than 48 hours, young plants may begin to stretch. Provide supplemental lighting or shade as required.

STEP 7: IRRIGATION DURING SEEDLING PRODUCTION

The following is the general schedule. Change as it fits to your operation (depending on crop, season, growing conditions, etc.). At every irrigation, use complete nutrient solution (100-125 ppm N) with pH adjusted to 5.6-5.8.

DAY	IRRIGATION SCHEDULE/ OTHER EVENTS
Day 1	Seeding/ Initial Watering/ Provide dark treatment
Day 2	Irrigation not required/ Keep under darkness
Day 3 - 5	Remove from darkness and irrigate. Overhead irrigation: apply ~2 L (2 QT.) uniformly over the substrate. Sub-irrigation: Until saturation.
Day 4 - 5	Irrigate daily. Overhead irrigation: apply ~2 L (2 QT.) uniformly over the substrate. Sub-irrigation: Until saturation.
Day 6	Irrigate as required until the young plants are ready for transplant

Note: Regular irrigation right after germination (Day 3 onwards), washes the clay coating sooner. This helps speed up the growth process because of earlier light interception.



STEP 8: TRANSPLANT

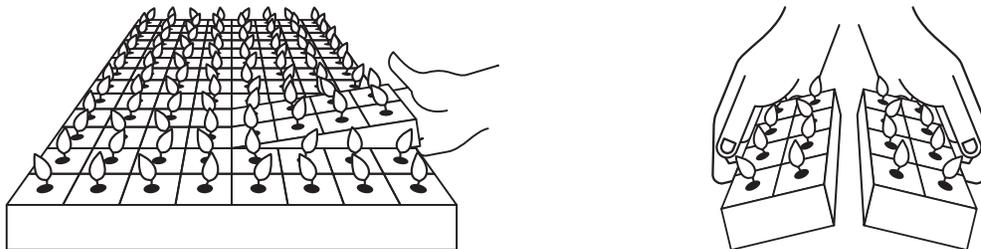
The young plants are ready for transplant into NFT (Nutrient Film Technique) or DWC (Deep Water Culture or Aeroponic System) when they have at least two true leaves and roots penetrating out of the bottom of the substrate. When transplanted, the bottom surface of the substrate needs to be in direct contact with the nutrient solution unless there are other watering procedures in place to avoid substrate from drying.

The following is a general transplant schedule of lettuce for efficient space utilization. The timeline can change depending on the growing environment:

CONFIGURATION	TIME TO TRANSPLANT
276 CT Horticubes®	12 days after seeding
162 CT Horticubes®	15 days after seeding
104 CT Horticubes®	18 days after seeding
50 CT Horticubes®	21 days after seeding

Note: Horticubes® is easier to handle if it is not completely saturated at time of transplant. As such, reduce or eliminate the irrigation of your young plants the day prior to transplant.

Horticubes® sheet is designed with a deeper etching on the top and a shallower etching on the bottom to allow for clean separation of individual cubes. Reach from the bottom of the sheet to pick a group of cubes and separate into individual cubes by using a top-down breaking motion.



STEP 9: STORAGE

Unused Horticubes® should be left in a closed carton. The carton should be stored in a dry location away from direct sunlight. When stored at room temperature, Horticubes® is good for at least 2 years or more from the date of manufacturing.

QUESTIONS:

Any questions or interested in purchasing an automated seeding equipment or water conveyer system, etc. consult with a OGS Technical Representative.



777 Stow Street
 Kent, OH 44240, USA
 855.585.4769
 oasisgrowersolutions.com
 info@oasisgrowersolutions.com