

OASIS® ^{TRAY} RhizoPlug™

Rhizo: root, root-like (origin Greek)

Automation-ready OASIS® RhizoPlug™ Tray is an engineered propagation substrate optimized for precision propagation of vegetative cuttings. When quality cuttings are started according to these instructions, this singulated foam substrate promotes fast, uniform, profuse root and shoot growth in manual or automated operations.



Instructions for Propagation

1. Unboxing

OASIS® RhizoPlug™ Tray singulated foam propagation substrate arrives preloaded in trays. To unbox your shipment, simply open the box and gently remove the trays one at a time.



2. Preparation and Initial Watering/Saturation

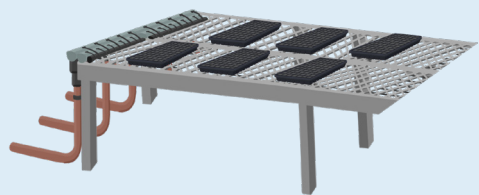
Do not stick cuttings before saturating the substrate. OASIS® RhizoPlug™ Trays ship clean and inert, with limited nutrients. In addition, the product ships dry, saving on shipping costs and prolonging shelf life.

It is essential that growers use a balanced fertilizer at a rate of 75 to 125 ppm N with an EC of 1 to 1.25 mS/cm during the initial soak and fully saturate the media to prevent dry spots. The recommended pH is specific to the genus that is being propagated.

Initial watering/saturation can be achieved by hand watering or by automated watering to efficiently handle large volumes of substrate.

HAND WATERING

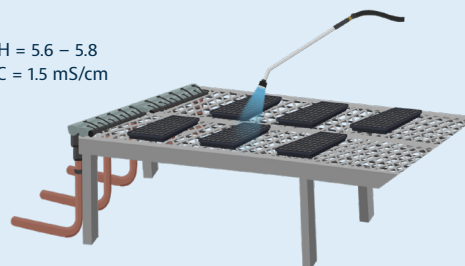
To fully saturate the substrate by hand watering, follow these instructions:



Step 1

Place the OASIS® RhizoPlug™ Tray directly on the bench, where irrigation can drain freely.

pH = 5.6 – 5.8
EC = 1.5 mS/cm



Step 2

Irrigate with a hose and a breaker to fully saturate the OASIS® RhizoPlug™ Tray substrate with nutrient solution.

It takes approximately three to four double passes with a hose to ensure the substrate is completely saturated and free of dry spots.

This procedure will allow the substrate to take on the pH and EC of the nutrient solution.

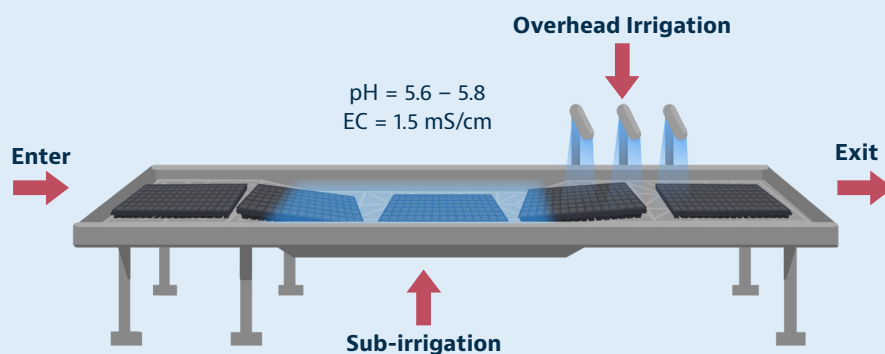
AUTOMATED WATERING

For complete saturation using an automated watering tunnel, follow these instructions:

For this process, place the OASIS® RhizoPlug™ Trays directly into the watering tunnel.

Complete saturation can be achieved efficiently by running OASIS® RhizoPlug™ Trays through a watering tunnel where the substrate gets saturated via sub-irrigation and overhead watering.

Reach out to your Oasis Grower Solutions Territory Sales Manager to learn more about watering tunnel equipment.



After complete saturation, move the OASIS® RhizoPlug™ Trays onto a bench, where excess water can drain freely.

✓ To confirm complete saturation, take the weight of a single plug or the entire tray after watering and refer to the following table. If still uncertain, refer to the Troubleshooting Tips below.

Dry and Wet Weights of OASIS® RhizoPlug™ Tray and Individual Plugs

Tray Configuration	Tray Dry Weight (gm) Before Saturation	Tray Wet Weight (gm) After Saturation	Plug Dry Weight (gm) Before Saturation	Plug Wet Weight (gm) After Saturation
50CT OASIS® RhizoPlug™ Tray	225	3500	0.94	64
72CT OASIS® RhizoPlug™ Tray	235	2700	0.55	34
105CT OASIS® RhizoPlug™ Tray	235	3000	0.43	26
128CT OASIS® RhizoPlug™ Tray	235	3200	0.38	23

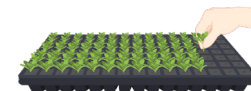
Note: Tray and plug dry weights and wet weights are average measurements.

3. Inserting the Cuttings

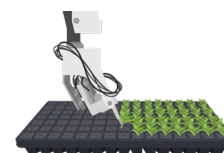
Once the substrate is fully saturated, insert the cuttings. OASIS® RhizoPlug™ Tray engineered propagation substrate comes pre-dibbled with a universal star that optimizes contact for thick or thin caliper cuttings.

The substrate's ultra-low density allows cuttings to easily penetrate for faster, easier, damage-free insertion, even with fragile, difficult-to-stick varieties.

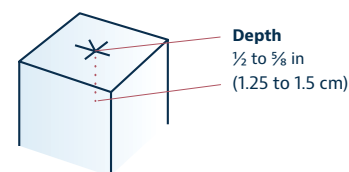
The standard insertion depth should be approximately $\frac{1}{2}$ to $\frac{5}{8}$ inch (1.25 to 1.5 cm), easily achieved with automated sticking. To prevent sticking too deep with manual insertion, hold the cutting with your thumb and index fingers approximately $\frac{5}{8}$ inch (1.5 cm) above the cutting tip. Then insert the tip until your fingers touch the pre-dibbled substrate. Mist the cutting immediately after insertion.



Manual sticking



Automated sticking



4. Mist Settings

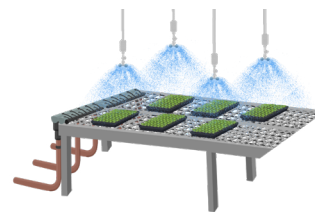
The advanced surfactant technology and readily available water in OASIS® RhizoPlug™ Tray propagation substrate promotes rapid rehydration of cuttings. This allows for earlier reduction in misting frequency, which in turn can reduce pest and pathogen pressure as well as nutrient leaching from the foliage.

The recommended frequency of misting depends on your crop and greenhouse conditions, including light, temperature, humidity and air movement. In general, for most vegetative annuals, run intermittent mist for 8 seconds every 8 minutes through the night for the first day.

After this crucial initial period, reduce intermittent misting to between 8 a.m. and 6 p.m. As cuttings recover, reduce misting frequency accordingly, but always avoid wilting. Approximately 8-14 days after sticking, misting can be stopped. From that time on, water once a day or as required.

Because OASIS® RhizoPlug™ Tray foam substrate is an open cellular matrix, overwatering will not occur when used properly. During propagation, always ensure that excess water can drain easily from the bottom of the tray.

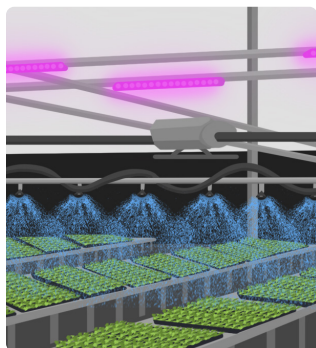
Note: For crops prone to nutrient leaching during misting, add a balanced nutrient solution containing 50 ppm N to the mist from the very beginning of propagation.



✓ Mist as recommended for crops and conditions.

5. Humidity and Air Circulation

During propagation, maintain high humidity levels (90-100% RH) and reduce air circulation to avoid wilting of the cuttings. Low humidity and high air circulation will increase the need for more frequent misting, which is undesirable. Excessive misting leads to nutrient leaching from the foliage, increased disease pressure and slower rooting.



6. Light Levels

Light transmission into the propagation house should be indirect or diffuse. This is usually not an issue for propagation during shorter winter days. However, if light levels are too low, consider using supplemental lighting. For light modulation during seasons with longer days, whitewashed glazing, retractable internal shade curtains or a combination of both will provide a good system.

In general, the recommended light levels for propagation of most vegetative annuals are 200 to 250 $\mu\text{mol}/\text{m}^2/\text{second}$ or a daily light integral (DLI) of 4 to 5 $\text{mol}/\text{m}^2/\text{day}$. Once the cuttings are 2 weeks old, a light level of 300 $\mu\text{mol}/\text{m}^2/\text{s}$ is recommended. While it can be challenging to achieve these levels naturally during winter months, an additional 100 $\mu\text{mol}/\text{m}^2/\text{s}$ of supplemental lighting can significantly improve rooting and overall quality of the cuttings.

7. Root Zone and Air Temperature

For most vegetative annuals, optimal rooting occurs when root zone temperatures are maintained, usually with bottom heating, between 75° and 80°F (24° to 26°C). Maintain daytime air temperatures of 70° to 74°F (21° to 23°C) and nighttime air temperatures of 68° to 72°F (20° to 22°C).

pH = 5.6 - 5.8
EC = 1.5 mS/cm

✓ Seven to 10 days into propagation, begin fertilizing every 2-3 days.

8. Fertilizer

Seven to 10 days into propagation, begin fertilizing every 2 to 3 days via overhead watering or sub-irrigation with a balanced nutrient solution containing 125 -150 ppm N with an EC of 1.25 to 1.5 mS/cm with pH specific to the genus being propagated.

9. Rooting

OASIS® RhizoPlug™ Tray engineered foam substrate promotes profuse root and shoot growth, which translates to shorter bench times and faster turnover. Be prepared for robust growth, and plan to transplant accordingly to ensure that young plants are not held for too long to avoid stretching. For most vegetative annuals, cuttings are usually fully rooted in and ready for transplant at 2 to 4 weeks.

Note: Most species will benefit from PGR application(s) to promote branching and reduce stem elongation. Trimming/pinching requirements will vary with species.

With fully rooted cuttings held for shipping or transplant, inspect the liners daily and water as needed to ensure that the substrate is not drying out. Depending on the greenhouse temperature and vigorous young plant growth expected in OASIS® RhizoPlug™ Tray substrate, this may mean watering daily. Do not allow the substrate to dry out.



! DO NOT allow the substrate to dry out.

10. Packaging and Shipping

OASIS® RhizoPlug™ Tray does not leak and is suitable for shipping rooted liners. When shipping cuttings rooted in OASIS® RhizoPlug™ Trays, especially for long distances, fully saturate the substrate before placing the trays in a shipping package.

Sub-irrigation is ideal to completely saturate the substrate, yet still avoid water on the foliage of sensitive plants prone to botrytis. If sub-irrigation is not possible, water the day before or early in the day so foliage is allowed to dry. Good air circulation and humidity control is essential for botrytis management.

For smaller shipments, put the saturated tray in a plastic bag before placing it in a shipping box. For larger shipments, load the saturated OASIS® RhizoPlug™ Trays onto shipping carts. When rooted cuttings arrive at their destination, the recipients should immediately check for water status and water accordingly.

11. Transplant

Thoroughly water OASIS® RhizoPlug™ Tray substrate before and after transplanting rooted cuttings. Always transplant cuttings into moist potting media, covering the top surface of the substrate with potting mix. If these steps are followed, no extra care or handling is required; transplants can be treated in the same manner as peat-based transplants.

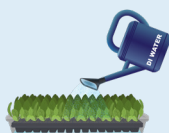
Troubleshooting Tips

TO MEASURE SUBSTRATE pH AND EC

If needed, use the leach method to measure pH and EC of OASIS® RhizoPlug™ Trays.

Leach Method

- ① Place the substrate tray with plant material in a large tote to collect the leachate.
- ② Water in the tray with 500 mL or more deionized water.
- ③ Measure the pH and EC of the leachate collected in the tote.



Note: If measuring the pH of unused foam substrate, water in the substrate first to complete saturation and let it sit 24 hours to equilibrate. Then conduct leach method to record the pH and EC. Measuring unused foam immediately after watering will result in an artificially low pH.

TO CONFIRM SUBSTRATE SATURATION

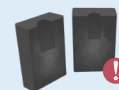
To confirm complete saturation of the substrate, cut open a plug to check for dry spots.



Cut open plug



Fully saturated plug



Plug with dry spot

TO TRACK LOT NUMBERS

OASIS® AeroMax™ PlugTray and OASIS® AeroSelect™ PlugTray lot numbers can be tracked via the Julian date and line run number printed on the upper right corner of each case.



Storage and Handling

Store product in its original packaging in a cool, dry location out of direct sunlight. Stored properly, this substrate has a shelf life of 2 years from the date of manufacture.



Food Safety

This substrate ships clean and free of pests and pathogens, including food-borne pathogens.



Disposal

Though not biodegradable, this ultra-low-density substrate will degrade after disposal, reducing volume over time. Please check with your local waste disposal facility for end-of-life options.