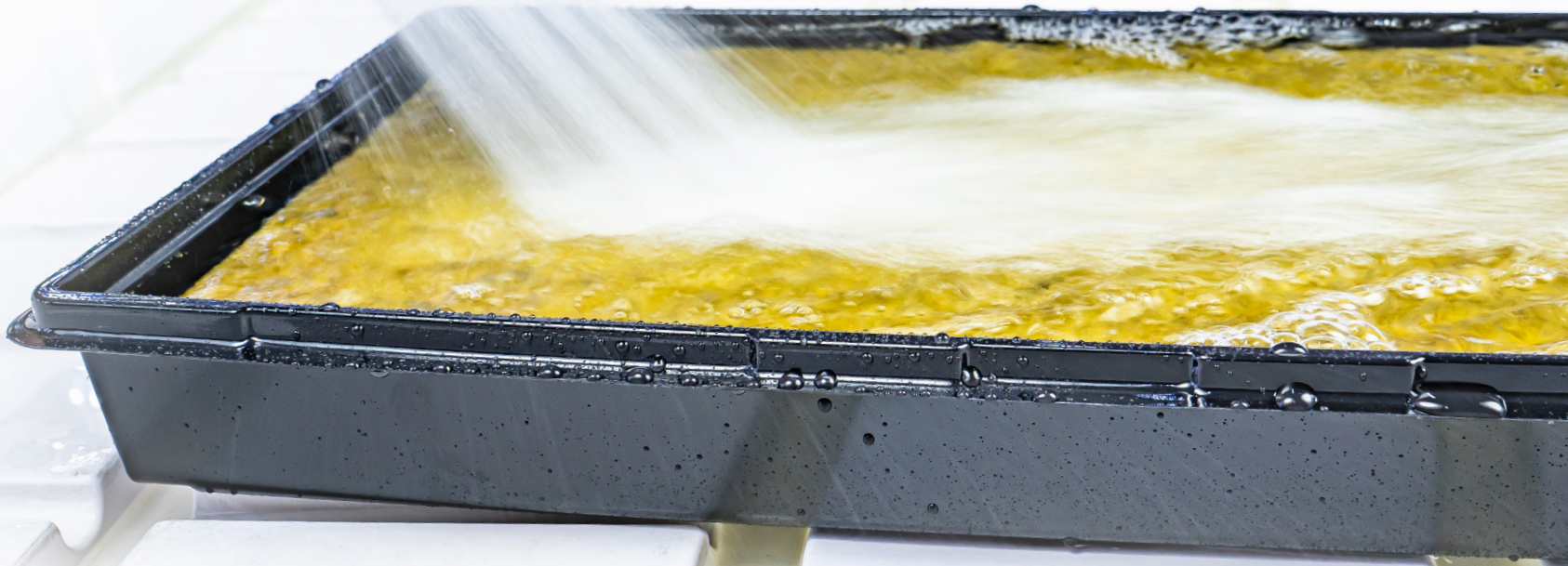


IMPERIAL

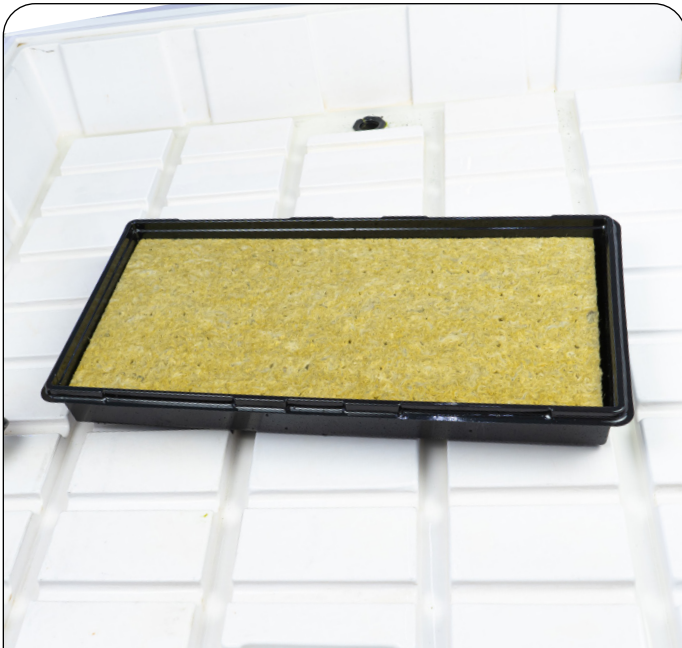
CLONING

STEP-BY-STEP



**PRO TIP:**

The solution level should be even with the top of the rockwool slab to ensure complete saturation.



- 1 Place a new, dry rockwool slab into a clean base tray.



- 2 Saturate the rockwool slab with the Athena® clone feed recipe.

- 3 Let the rockwool soak for at least 10 minutes.



- 4 Drain excess solution.



- 5 Tilt the tray 90° to drain fully.

NOTE: The tray is sufficiently drained when there are only droplets remaining.

In order to encourage a mother plant to produce quality cuttings it is crucial to have proper moisture management through strategic irrigation events and selecting the proper pot size to avoid roots becoming root bound.



4 inch



Day 1-6



Hand feed
20% run-off



1x every
2 days

Day 7-14

Hand feed
20% run-off

1x every
1-2 days



1 Gallon



Day 1-7



Hand feed
20% run-off



1x every
2 days

Day 8-15

0.5 GPH emitters
20% run-off

5 min.
5x daily

Day 16-30

0.5 GPH emitters
20% run-off

20 min.
5x daily



5 Gallon



Day 1-10



Hand feed
20% run-off



1-2x every
2 days

Day 11-15

1.0 GPH emitters
20% run-off

20 min.
5x daily

Day 16-30

1.0 GPH emitters
20% run-off

40 min.
5x daily



7 Gallon



Day 1-10



Hand feed
20% run-off



1-2x every
2 days

Day 11-30

1.0 GPH emitters
20% run-off

30 min.
5x daily

Day 31-90

1.0 GPH emitters
20% run-off

60 min.
5x daily



- 1 Inspect the Mothers for overall plant health and growth rates.

NOTE: Limit cuttings only to mother plants that are at least 60 days old, but no more than 185 days. Older plants tend to become "woodier" and are less likely to maintain optimal plant health or distinct genetic traits.

PRO TIP: Do not take any cuttings from mother plants with stunted growth, unhealthy signs of severe nutrient deficiencies, environmental stress, pests or pathogens.



2 Identify branches to cut, focusing on the upper and middle part of the plant.

PRO TIP: Branches should be at least 1/8 inch thick and be more than 6 inches long. Avoid the bent branches on the lower part of the plant.

**PRO TIP:**

Cuttings should be evenly taken from around the entire mother plant to create a balanced and uniform shape.

This technique will produce more primary branches after a three week period of regenerative growth.

- 3 Collect the cuttings in handfuls of 25 to 36 cuttings to bring to the next station.



1 Measure the stem to be approx. 5" tall.



2 Cut the stem to make the cutting approx. 5" tall.



3 Remove the lower nodes and fan leaves by making cuts flush to the stem.



4 Hold the top of a cutting by making a fist exposing the blade tips.



5 Cut off the blade tips.



CUP THE CUTTINGS

Allocate 25 Cuttings Per Cup

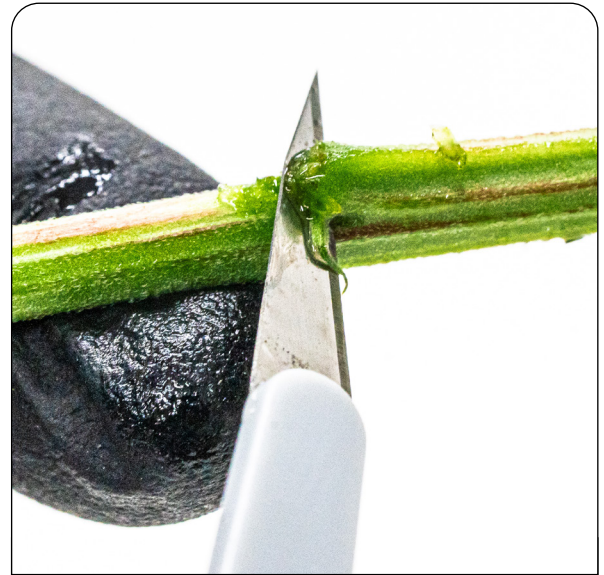
If cuttings are not plugged within 1-2 hours, add more of the Athena® Mother Recipe as needed to maintain the 100-125 mL level in each cup. The bottom ½ - 1½" of each cutting stem should always be submerged in the solution until it is plugged to prevent any drying-up and wilting.

1

Place manicured cuttings into a 18oz cup containing 100-125 mL of the Athena® Mother Recipe (page 49 for [Pro Line](#), page 63 for [Blended Line](#)) onto the cup station.



Each 500 mL cup can safely hold 25 cuts for 1-2 hours in that much solution.



- 1** Use a scalpel to cut through the bottom of the stem at a 45° angle to expose more plant tissue hormones that promote cell division for root growth.



- 2** Dip the 45° angle end of the stem into the shot glass containing the Athena® Cuts rooting compound.

- 3** Coat the bottom 1" of the stem by slowly rotating it in the compound for 5 seconds.



- 4 Delicately stick the 45° angle end of the cutting stem, coated with Athena® Cuts, into the top of the rockwool cube, approximately $\frac{3}{4}$ - 1" deep.



NOTE: Be careful not to break the stem. Do not force the stem into the cube.

$\frac{3}{4}$ " - 1" deep



INSERT TRAY PATTERN

Place the plugged cuttings into the insert tray. To prevent potential canopy problems from overcrowding, use every other insert. A 72 cell insert tray should contain only 36 clones.





- 1 Fill the shelving with freshly plugged trays of clones and close the magnetic doors. This is Day 1.

NOTE: If not filling the VPDome™ with 16 trays of clones, optimal environmental conditions will not be achieved inside the VPDome™. A small humidifier placed inside the cover can be used to make up that difference.





NOTE: If the clone trays were pre soaked sufficiently, the clones should be fed again on Days 5, 7, 9, and 11 maintaining a 30-35% dryback.



2 On Day 2, the VPDome™ can be left closed all day to develop the proper humidity levels.





NOTE: Before folding the doors into thirds, spray and wipe with a solution of Athena® Reset at 1 oz per gallon of water to prevent growth of pathogens.



NOTE: Colder environments outside the VPDome may create much higher levels of condensation so burping twice a day would be needed.



3 Day 3 and forward, burping is done for 5 to 20 minutes to ventilate the VPDome™ by leaving the magnetic doors half open with only the lower magnetic strips attached.

IMPERIAL

 ATHENA®

CULTURE 

SAY GOODBYE TO DOMES

SAVE ON TIME, MONEY, AND LABOR.
NO MORE FLIMSY DOMES THAT BREAK EASILY AND
CONSTANTLY NEED TO BE REPLACED.

VPDOME™



LOCATE YOUR NEAREST ATHENA® AUTHORIZED DEALER.

CLONING

STEP-BY-STEP



WHAT IS CLONING?

The process of replicating genetic phenotypes by taking branch cuttings from mother plants. Branch cuttings contain auxin hormones that encourage lateral root growth.

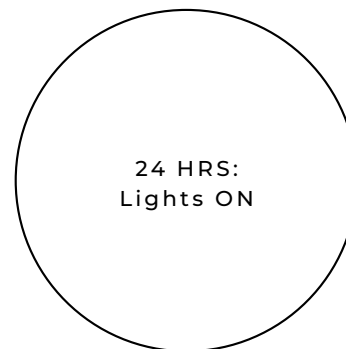
WHY CLONE?

To stabilize preferred cultivars in order to produce a consistent final crop on any size scale. Cuttings from the same mother plant share identical chemotype compositions.

 **CLIMATE**

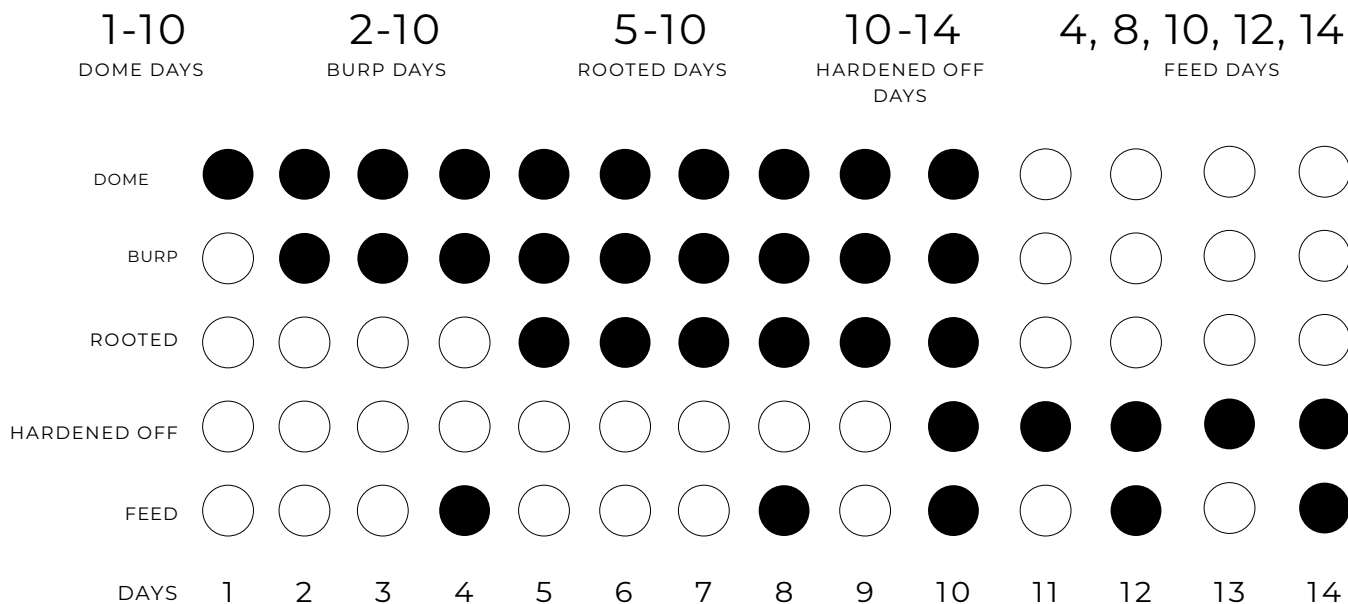
- TEMP: 23.8° - 26.6° C (Room)
- RH: 65 - 75% (Room)
- DH: 80 - 95% (Dome)
- VPD: 0.8 kPa (Room)
- PPFD: 100 - 150 (Canopy)
- EC: 2.0 - 3.0 (Input)
- PH: 5.6 - 6.0 (Input)

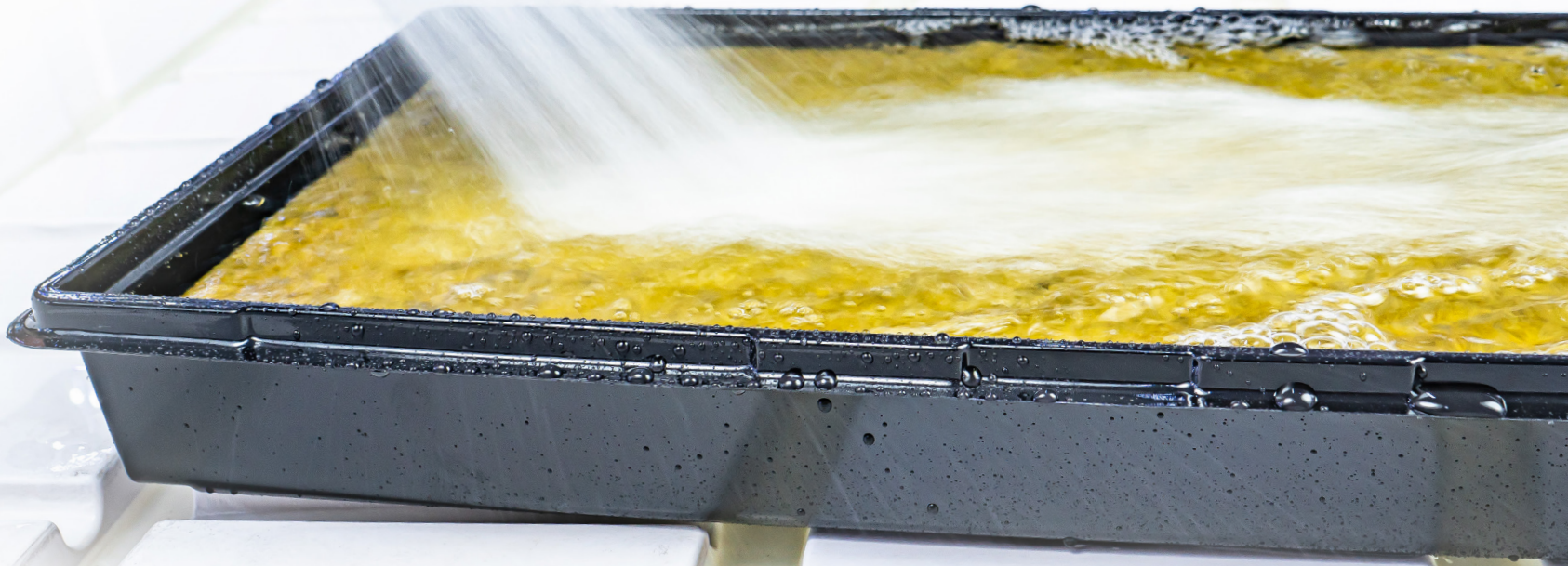
 **LIGHT SCHEDULE**



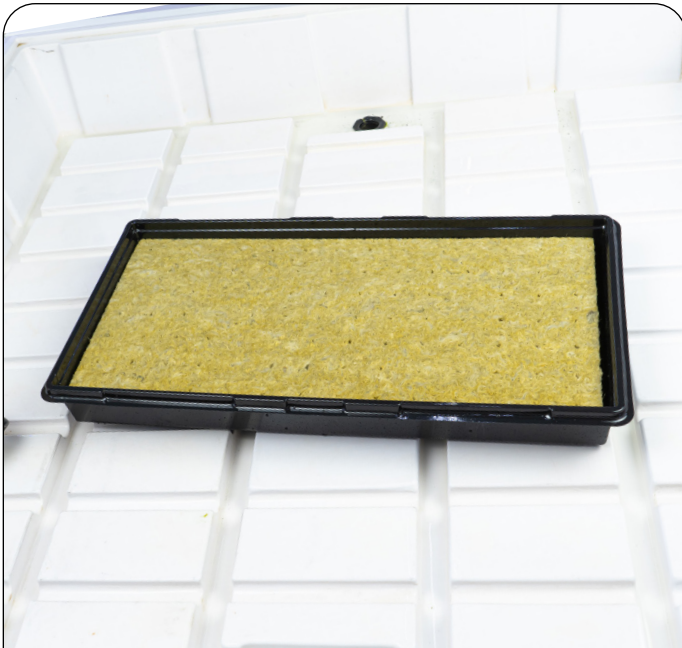
EXPECTED TIME FRAMES

14 TOTAL DAYS



**PRO TIP:**

The solution level should be even with the top of the rockwool slab to ensure complete saturation.



- 1 Place a new, dry rockwool slab into a clean base tray.



- 2 Saturate the rockwool slab with the Athena® clone feed a recipe.

- 3 Let the rockwool soak for at least 10 minutes.



- 4 Drain excess solution.



- 5 Tilt the tray 90° to drain fully.

NOTE: The tray is sufficiently drained when there are only droplets remaining.

In order to encourage a mother plant to produce quality cuttings it is crucial to have proper moisture management through strategic irrigation events and selecting the proper pot size to avoid roots becoming root bound.



1 Liter



Day 1-6



Hand feed
20% run-off



1x every
2 days

Day 7-14

Hand feed
20% run-off

1x every
1-2 days



4 Liter



Day 1-7



Hand feed
20% run-off



1x every
2 days

Day 8-15

0.5 GPH emitters
20% run-off

5 min.
5x daily

Day 16-30

0.5 GPH emitters
20% run-off

20 min.
5x daily



20 Liter



Day 1-10



Hand feed
20% run-off



1-2x every
2 days

Day 11-15

1.0 GPH emitters
20% run-off

20 min.
5x daily

Day 16-30

1.0 GPH emitters
20% run-off

40 min.
5x daily



25 Liter



Day 1-10



Hand feed
20% run-off



1-2x every
2 days

Day 11-30

1.0 GPH emitters
20% run-off

30 min.
5x daily

Day 31-90

1.0 GPH emitters
20% run-off

60 min.
5x daily



- 1 Inspect the Mothers for overall plant health and growth rates.

NOTE: Limit cuttings only to mother plants that are at least 60 days old, but no more than 185 days. Older plants tend to become “woodier” and are less likely to maintain optimal plant health or distinct genetic traits.

PRO TIP: Do not take any cuttings from mother plants with stunted growth, unhealthy signs of severe nutrient deficiencies, environmental stress, pests or pathogens.



- 2 Identify branches to cut, focusing on the upper and middle part of the plant.

PRO TIP: Branches should be at least 0.3 cm thick and be more than 15 cm long. Avoid the bent branches on the lower part of the plant.

**PRO TIP:**

Cuttings should be evenly taken from around the entire mother plant to create a balanced and uniform shape.

This technique will produce more primary branches after a three week period of regenerative growth.

- 3 Collect the cuttings in handfuls of 25 to 36 cuttings to bring to the next station.

MANICURE THE CUTTINGS



1 Measure the stem to be approx. 13 cm tall.



2 Cut the stem to make the cutting approx. 13 cm tall.



3 Remove the lower nodes and fan leaves by making cuts flush to the stem.



4 Hold the top of a cutting by making a fist exposing the blade tips.



5 Cut off the blade tips.



CUP THE CUTTINGS

Allocate 25 Cuttings Per Cup

If cuttings are not plugged within 1-2 hours, add more of the Athena® Mother Recipe as needed to maintain the 100-125 mL level in each cup. The bottom 1.5 cm - 4 cm of each cutting stem should always be submerged in the solution until it is plugged to prevent any drying-up and wilting.

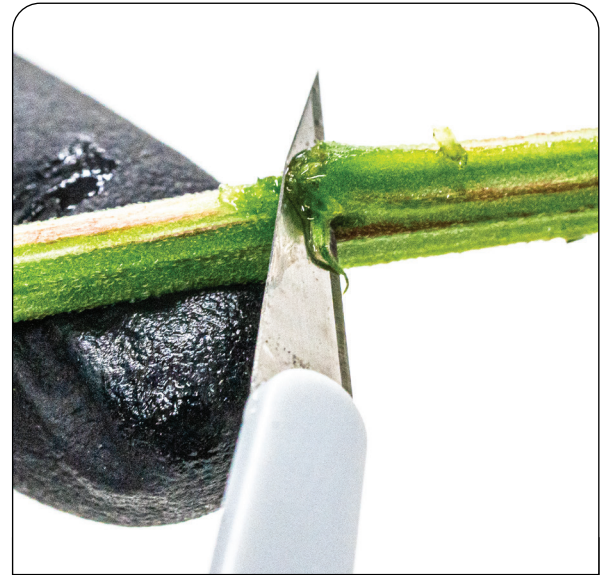
1

Place manicured cuttings into a 500 mL cup containing 100-125 mL of the Athena® Mother Recipe (page 49 for [Pro Line](#), page 63 for [Blended Line](#)) onto the cup station.



Each 500 mL cup can safely hold 25 cuts for 1-2 hours in that much solution.





- 1** Use a scalpel to cut through the bottom of the stem at a 45 angle to expose more plant tissue hormones that promote cell division for root growth.



- 2** Dip the 45° angle end of the stem into the shot glass containing the Athena® Cuts rooting compound.

- 3** Coat the bottom 2.5cm of the stem by slowly rotating it in the compound for 5 seconds.



- 4 Delicately stick the 45° angle end of the cutting stem, coated with Athena® Cuts, into the top of the rockwool cube, approximately 2 - 2.5 cm deep.



NOTE: Be careful not to break the stem. Do not force the stem into the cube.

2 - 2.5 cm deep



INSERT TRAY PATTERN

Place the plugged cuttings into the insert tray. To prevent potential canopy problems from overcrowding, use every other insert. A 72 cell insert tray should contain only 36 clones.





- 1 Fill the shelving with freshly plugged trays of clones and close the magnetic doors. This is Day 1.

NOTE: If not filling the VPDome™ with 16 trays of clones, optimal environmental conditions will not be achieved inside the VPDome™. A small humidifier placed inside the cover can be used to make up that difference.





NOTE: If the clone trays were pre soaked sufficiently, the clones should be fed again on Days 5, 7, 9, and 11 maintaining a 30-35% dryback.



2 On Day 2, the VPDome™ can be left closed all day to develop the proper humidity levels.





NOTE: Before folding the doors into thirds, spray and wipe with a solution of Athena® Reset at 7.8 mL per liter of water to prevent growth of pathogens.



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METRIC

 ATHENA®

CULTURE 

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