

ÆssenseGrows

Cuttings in the Ætrium System

SOP3

Mother Plants

Mother plants are the plants that cuttings are taken from. A healthy mother plant is key for healthy, successful cuttings. Your mother plant should have healthy new growth and be of free of pests and diseases **(Figure 1)**. Select a mother plant that is female, and produces superior quality flowers. It is best to have your mother plant well-watered before making cuttings, and to take cuttings early in the morning when the plant is fully turgid and under minimal stress. Do not take cuttings from flowering plants. It is difficult and stressful for the cutting of a flowering plant to revert back to vegetative growth.



Fig. 1: Healthy mother stock plant.

Removing Plant Material from Mother Plants

Take a cutting from the soft primary growth near the shoot meristem, the stem should still be flexible, but should not snap in half. Select branch tips from vertical shoots with three to four sets of leaves.

It is best to take a cutting just above a node on the mother plant. If not, make a second cut on the mother plant right above the highest node. This will limit decay and potential disease on the mother plant. Do not make an angled cut as callus tissue forms faster on straight cuts rather than angle cuts, therefore reducing incidence of disease. Make sure that a sharp cutting tool is used to remove plant material from the mother stock plants. Sharp razor blades, grafting knife or bypass pruners are best as they will not crush the vascular tissue. Be sure to sterilize the tools between each cut with rubbing alcohol or 10% bleach solution.

Immediately place the cuttings in water and do not allow them to dry out. If you are working in a large area keep them in a cool, dark, and moist place while you are collecting additional plant material.

Preparing the Cuttings

Remove lower leaves from the cutting, and trim larger leaves if needed to reduce leaf surface area. With a sharp and sterile blade, make a fresh cut just below a node at the base of the stem. This cut should be at a 45° angle to expose more tissue for water uptake and greater area for potential rooting.



Fig. 2: Removing lower leaves from the cutting, removing lowest later bud, and re-cutting stem with 45° angle cut.

Additionally, removing the lowest axillary bud at the lowest node **(fig. 2)** may help encourage rooting.

Immediately dip the cut end of the cutting into water or if you a liquid rooting hormone such as Dip' N Grow. Rooting hormones are not absolutely necessary, but may encourage root formation. If Dip' N Grow liquid rooting concentrate is used, it is recommended to use the 15x dilution rate.

Place the cutting into the foam collar by opening the collar up. Do not push the stem through the foam collar as it can damage the cutting. **(fig. 3)**

Place the foam collar into the 2" plastic cloner cup. **(fig. 4)**



Fig. 3: Cutting inserted into foam collar.



Fig. 4: Foam collar inserted into the plastic cloner cup.

Place the cutting into the Ætrium-2.1 SmartFarm. Cuttings should be kept in a humid environment with low light, low fertility, and moderate temperatures until roots emerge. Mist with clear water (pH adjusted to 5.8) if necessary to increase RH and reduce transpiration. The following are generally considered appropriate conditions for successful rooted cuttings.

- Ambient temperature: 72/68° F (day/night)
- Relative Humidity: 75/60% (day/night)
- Light intensity: 150 µmol/m²/s
- Photoperiod: 18hrs
- Water temperature: 70°F
- EC: 300 ppm (NaCl)
- pH: 5.8



Fig. 5. Rooted cuttings in the AEtrium 2.1

Roots will emerge in 7-10 days depending on the strain at which time you will need to begin to harden the plants off. **(fig. 5)**

Hardening Off

For the most successful transition to the vegetative stage, allow the young plants to gradually acclimate to the vegetative environment. This involves slowly reducing the humidity and increasing the light intensity and nutrient concentration. Sudden drops in humidity during the transition from propagation to harvest will lead to wilted plants that will take time to recover and adapt. If you gradually reduce humidity over the span of a few days, the plants will not wilt. The increase in light and nutrients should also be gradual.

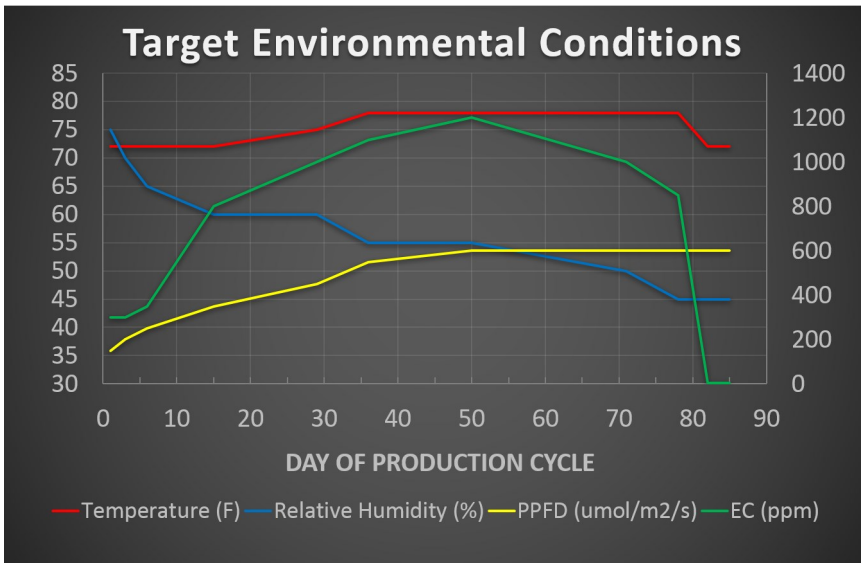


Fig. 6: Relative target set points for cannabis life cycle from rooted cutting to harvest.

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