Grodan®

Part of ROCKWOOL Group

5-Phase Model®

Propagation of Cuttings

PHASE 1

This structured, phase-based approach enables proactive steering of the crop rather than reactive growing, helping cultivators drive uniformity, optimize inputs, and consistently achieve the desired plant architecture and yield outcomes that Grodan is known for worldwide.

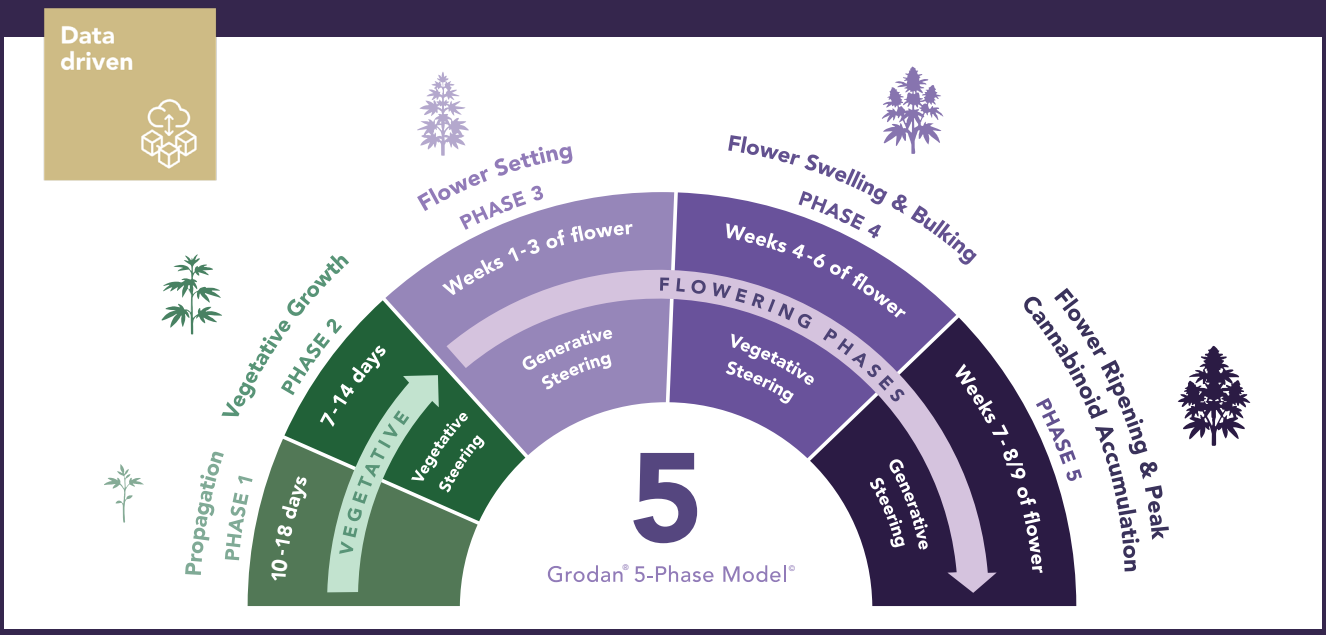
Simpler crop management. More predictable outcomes.

5-Phase Model© in Large Blocks | One-Transplant System

A simple framework that breaks the crop cycle into 5 phases, so you know what to do and when to do it.

Grodan's latest cannabis growing advice builds on its decades-long leadership in vegetable cultivation by translating the proven 6-phase methodology into a clear, cannabis-specific 5-Phase Model©.

Each chapter pairs Grodan's substrate configuration with phase-specific objectives, root-zone and canopy management targets, and tailored crop steering advice, so growers can visually and quantifiably confirm they are on track at every stage of growth.

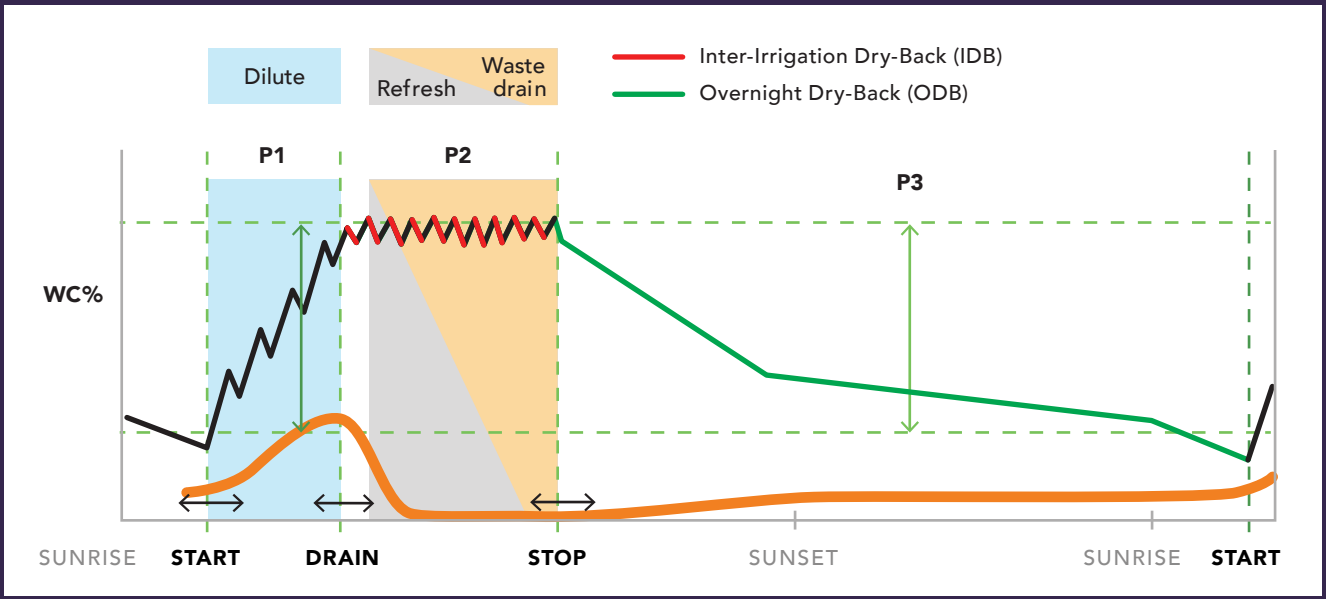


Grodan's DAY-DYNAMIC MODEL

P1 - First irrigation to first drain | P2 - First drain to last irrigation | P3 - Last irrigation to first irrigation

Inter-Irrigation Dry-Back (IDB): Dry-back in between P2 irrigation events.

Overnight Dry-Back (ODB): Dry-back from last irrigation of the day to first irrigation of the following day.



Phase 1

Propagation of Cuttings

Typical duration

~10-18 days

Start of Phase

Cuttings are placed into the Grodan propagation plugs.

End of Phase

Roots visible at the plug base; propagation plugs are well rooted and the cuttings are ready to be transplanted into blocks.

Phase Objective

Fast and disease-free callus formation and root-initiation. The plugs should be maintained at a moderate volumetric water content (WC%) to avoid stem rot and damping-off while the cuttings form calluses and initiate roots. The aim is to colonize the plugs with healthy and active adventitious roots, while gradually acclimating the cuttings to lower humidity levels, in preparation for humidity dome/tent removal and relocation to the vegetative space.

This will ensure uninterrupted growth momentum at transplanting. It is critical to supply adequate nutrition (sufficient and balanced electrical conductivity) from initial wetting through subsequent irrigations to maintain healthy plant tissue and prevent mineral deficiencies.

Crop Target

Maintain turgid and healthy leaf tissue and avoid wilting. Be mindful of the cutting density. Avoid overlapping leaves in the propagation trays and facilitate adequate airflow to prevent fungal growth on the leaf tissue and stems.

Propagation Environment — Humidity Dome/Humidity Tent/Propagation Chamber

Parameter	Day 1-4	Day 5-7	Day 8-10	Day 11-18
Temperature	75-80°F/ 24-27°C	75-80°F/ 24-27°C	75-80°F/ 24-27°C	75-80°F/ 24-27°C
Relative Humidity	80-90%	75%+ ↓	72-75% ↓	72%+ ↓
Light Duration	18-20 hrs	18-20 hrs	18-20 hrs	18-20 hrs
Light Intensity	150-200 µmol/m²/s	150-200 µmol/m²/s	150-200 µmol/m²/s	150-200 µmol/m²/s

Table 1.1

↓ Relative humidity should be reduced gradually across the phase to acclimate cuttings to vegetative room conditions before dome/tent removal.

Root-Zone Target

Grodan Propagation Plugs should be saturated with a balanced nutrient solution holding an electrical conductivity (EC) of 1.5-2.5 mS/cm, and a pH of 5.5.

A moderate decrease in water content (WC%) before each irrigation event will encourage callus formation and reduce the incidence of disease ingress.

Phase 1 Root-Zone & Irrigation Targets

Grodan Plug Options	1", 1.5", 2", and Macroplugs (1.5" round)
Tray Density	39-50 cuttings per tray
Initial Saturation EC	1.5-2.5 mS/cm
Initial Saturation pH	5.5
Initial Saturation Temperature	65-68°F/18-20°C
Irrigation Trigger (Tray Weight)	40-50% decrease from starting tray weight
Photoperiod	18-20 hrs
Light Intensity	150-200 µmol/m²/s

Table 1.2

For more detailed information on the process of taking, irrigating, and maintaining cuttings, please refer to the **Grow Guide**.

Process

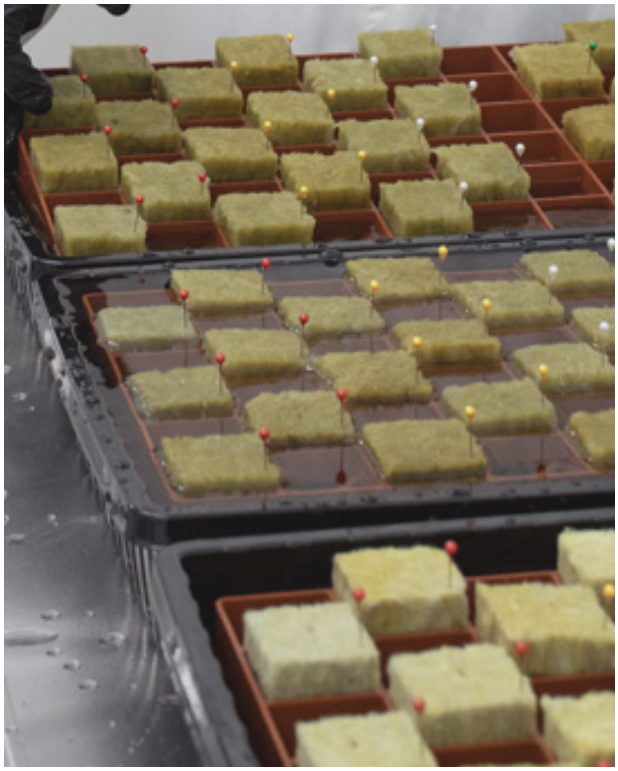
The following steps cover the full propagation process from plug saturation through transplant readiness. Maintaining hygiene, climate consistency, and the correct nutrient solution at every stage is the foundation of uniform and healthy propagation.

Step 1: Saturate the Grodan Propagation Plugs

Saturate the Grodan propagation plugs using a balanced fertilizer solution at EC 1.5-2.5 mS/cm and pH 5.5 before taking or inserting cuttings. Two methods are suitable:

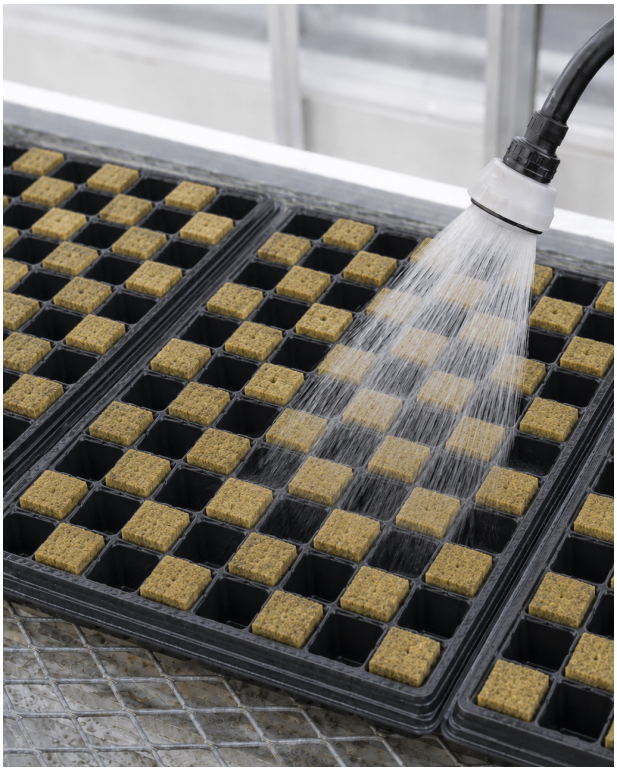
Method 1 Submersion

Submerge the entire tray of propagation plugs into the nutrient bath and allow to soak for approximately 5 minutes, or until all air bubbles have been displaced. Remove the tray and allow excess solution to drain before proceeding.



Method 2 Overhead Saturation

Apply the nutrient solution via an overhead watering wand fitted with a coarse spray head. Apply slowly and make several passes over the plug trays until all plugs are uniformly saturated.



Step 2: Prepare Mother Plants and Take Cuttings

Preparing mother plants before propagation ensures the cuttings are healthy, well-hydrated, nutritionally balanced, and physiologically primed for rapid rooting and uniform propagation success.

Mother Plant Preparation (2-3 hours before taking cuttings)

The following steps should be carried out in the mother room **2-3 hours** before cuttings are severed:

- Reduce light intensity by 25-50% for the duration of cutting severance to reduce transpiration stress on both mothers and cuttings.
- Increase room humidity to 75-78% for the duration of cutting severance.
- Ensure mother plants have been re-saturated from the previous overnight dry-back (P3) and have achieved some drain before cuttings are severed; this confirms the plant is well-hydrated and nutrient solution is actively moving through the tissue.
- An adequate number of healthy mother stock plants is essential for consistently selecting high-quality shoots.

Taking Cuttings

1. Take cuttings from the tops of mother plants. Apical cuttings root fastest and produce the most uniform plant development. Cuttings should be **3.5-5 inches/8-12 cm in length** with uniform stem diameters.
2. Remove all nodes and leaves below the top 2-3 growth points. Remove upper and lower leaves as necessary to prevent leaf overlap in the trays.
3. Trimmed cuttings should be placed into a sanitized cup containing 1-2" of nutrient solution with an **EC of 1.5-2.5 mS/cm and a pH of 5.5** to maintain turgor and reduce wilting risk while the tray is being filled.
4. At this point, an optional disinfecting, anti-fungal, or integrated pest management (IPM) dip can be applied, if desired.
5. Using a sanitized implement, cut the base of the stem at a **45-90° angle**.
6. Dip the base of the cutting in prepared rooting hormone and insert immediately into a saturated Grodan propagation plug. Process cuttings as quickly as possible; do not leave prepared stems exposed to air.
7. Continue until the tray is filled to the desired density.
8. Label each tray with cultivar name, date, and **starting tray weight**. Starting weight = tray + insert + saturated plugs + cuttings, weighed together, excluding the humidity dome.
9. Place filled trays in humidity dome, humidity tent, or propagation chamber. Maintain environmental setpoints as shown in the table above. (Table 1.1)

Step 3: Root Development and Daily Monitoring

10. To prevent fungal disease, avoid leaf overlap and contact between leaf tissue and the inside surface of the humidity dome. Wipe the inside of humidity domes dry daily, or replace daily with dry, sanitized domes.
11. Inspect cuttings daily for wilting, damping-off, or mold. Remove any failed cuttings immediately — diseased material left in the tray can rapidly spread to healthy cuttings.
12. After the first **48 hours**, begin weighing trays daily with the humidity dome removed. Record the weight of each tray.
13. Irrigate each time the tray weight has dropped by 40-50% of the initial labeled **starting tray weight**. A moderate dry-back between events promotes callus formation and reduces disease risk — do not irrigate on a fixed schedule.

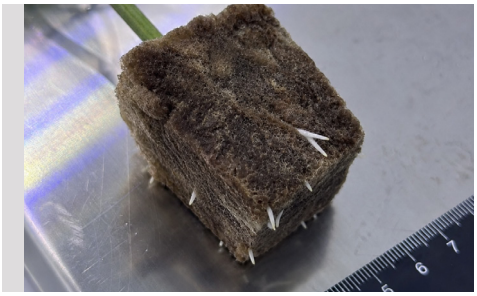
Transplant Readiness

After approximately 14-18 days, the rooted cuttings should be ready for transplanting into large blocks. Daily visual assessment from day 10 onward is critical — some cultivars will root faster than 14 days.

Ready to Transplant ✔

- 4-5+ white root tips visibly exiting the sides or base of the plug
- Roots are short, compact, and actively growing
- Cutting is turgid with no signs of wilting or yellowing
- Nearly all plugs in the tray showing root emergence

Not Yet Ready/CAUTION ✖



- Few or no root tips visible at plug base or sides
- Excessively long, branching, or brown roots — possible overwatering
- Significant variation in root development across the tray
- Any wilting, damping-off, or soft stem tissue at the base

Avoid excessive root development before transplant ✖

Excessively long or densely branched roots at the base of the plug are often a sign of overwatering and/or delayed transplant. Roots of this type are more prone to tissue die-off when placed into the Grodan blocks and can inhibit rapid rooting-in. Transplant as soon as readiness criteria are met.

*For detailed guidance on mother plant management, clone selection, rooting hormone protocols, and sanitization procedures, refer to the **Grodan Cannabis Grow Guide**, Propagation of Cuttings chapters.*

Points of Special Interest

Nutrition from day one

Providing a balanced nutrient solution at EC 1.5-2.5 mS/cm from the initial plug saturation — rather than plain water — is critical for preventing mineral deficiencies during the rooting period.

Weight-based irrigation

Irrigating on the basis of measured tray weight rather than a fixed schedule is the most reliable method for avoiding both overwatering and underwatering in propagation. Record the starting weight of every tray at plugging and irrigate only when the 40-50% weight decrease threshold has been reached.

Airflow & disease prevention

Fungal disease — particularly *Botrytis* spp. (bud-rot) and damping-off — is the primary threat during propagation. The most effective prevention is physical: avoid leaf overlap, wipe or replace humidity domes daily, remove failed cuttings immediately, and begin humidity reduction from day 5.

Humidity acclimation before transplant

Reducing relative humidity gradually from 80-90% on day 1 to 72%+ by days 10-18 acclimates the cuttings to the lower humidity levels of the vegetative room. Skipping this acclimation and moving directly from high humidity to the vegetative environment often causes a temporary setback in growth momentum at the transplant stage.

Build Uniformity from Day One

Strong crops don't happen by accident. Grodan propagation plugs provide a consistent environment for rooting.

LESS GUESSWORK ★ MORE CONTROL ★

Reduce variability, improve irrigation decisions, and create more uniform plants before transplant.

See what's happening inside the root-zone.

Explore GroSens Suite.

Grodan®

Part of ROCKWOOL Group

This is what control looks like

With Grodan, you're not left guessing.

You're working with a consistent root-zone, clear signals, and a system designed to be repeatable. From propagation to harvest, every phase becomes easier to manage and more predictable.

Ready to see it in your own grow?

Talk to a Grodan advisor to start a trial.

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