Grodan®

Part of ROCKWOOL Group

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

Vegetative Growth

PHASE 2

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.

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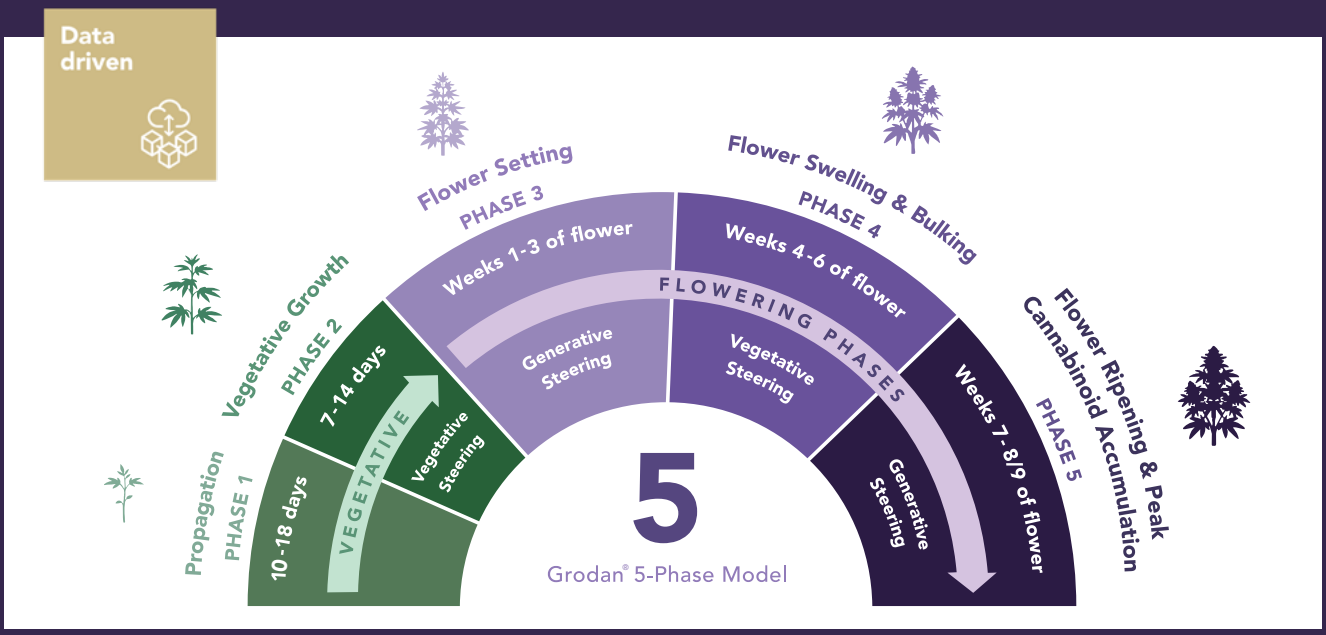
5-Phase Model in Large Blocks | One-Transplant System

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.

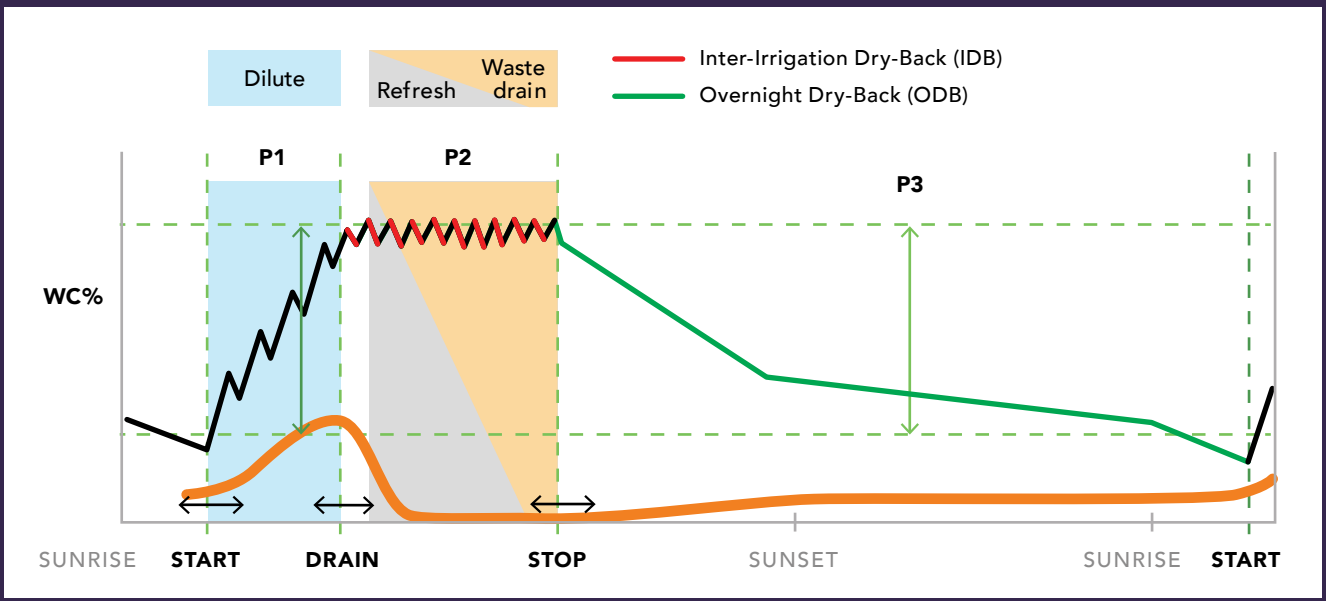


Grodan's DAY-DYNAMIC MODEL

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.



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Phase 2

Vegetative Growth

in Large Blocks | One-Transplant System

Typical duration

~7-14 days

Start of Phase

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

End of Phase

Plants have expanded vegetative tissue and leaf area index to intercept photons and support flower production. Photoperiod is adjusted to induce flowering.

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Phase Objective

Create a strong, vigorous, vegetative foundation to support maximum flower and secondary metabolite production.

Ensure fast and uniform rooting into the large block.

The roots should be distributed throughout the entirety of the substrate.

Crop Target

Build a uniform, robust canopy structure to intercept maximum DLI (daily light integral) during the flowering phase.

Encourage compact plants with short-to-moderate internode spacing and strong lateral branching.

Root zone Target

Fast rooting from the plug into the block will facilitate early vegetative steering and the development of a strong root system throughout the entire volume of the growing media. This will support maximum water and nutrient uptake in later phases of growth.

The EC used for initial saturation of the block must be high enough to sustain healthy plant growth during the transplanting and acclimation process, especially when light intensities are low during transition.

Day-level WC% decreases gradually from field capacity at transplant to 65% within the first few days, driving horizontal root distribution and branching.

Phase 2 Root zone & Irrigation Targets

Start Time	+1 hr after lights on or 1-2% decrease in WC%
Stop Time	Stop as needed to achieve 10% overnight dry-back (P3)
Target Day-Level WC	80%+ at transplant, decreasing to 65%
Overnight Dry-Back (P3)	10%
Inter-Irrigation Dry-Back (P2)	2-3%
Initial Saturation EC	2.5-3.5 mS/cm
Initial Saturation pH	5.5
Initial Saturation Temperature	65-68°F/18-20°C
Drip EC	2.5-3.5 mS/cm
Substrate EC	2.5-4.5 mS/cm (rising toward flower initiation)
24-Hr Drain Volume	0-10%
Steering Impulse/Shot Strategy	Vegetative/Small, Frequent

Table 2.1

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Block Saturation Prior to Transplant

Grodan's large blocks must be fully saturated with a balanced vegetative nutrient solution before the propagation plug is transplanted. This process is crucial to the success of the entire cultivation cycle. The blocks should be saturated with an EC of 2.5-3.5 mS/cm and a pH of 5.5. Two methods are suitable:

Method 1-Submersion

Submerge blocks in a balanced vegetative nutrient solution with an EC of 2.5-3.5 mS/cm and a pH of 5.5.

Allow them to sink, then remove them from the solution once bubbling stops. Check weights against the reference table saturation weights.

Method 2-Overhead Watering

Saturate blocks via overhead watering by applying 2x or more the volume of the block via multiple passes with short rest times in between.

Continue applying the solution until the blocks reach reference table saturation weights.

Description - Blocks	Dimensions (LxWxH) in cm	Dimensions (LxWxH) in inches	WC advice in grams (minimum)*
Grodan Mini-Block 1.5"	4x4x4	1.5x1.5x1.5	57
Grodan Mini-Block 2"	5x5x5	2x2x2	110
Grodan Block 4	7.5x7.5x6.5	3x3x2.6	275
Grodan Block 5.6	7.5x7.5x10	3x3x4	500
Grodan Block 6.5	10x10x6.5	4x4x2.6	550
Grodan Block 7.5	10x10x7.5	4x4x3	600
Grodan Block 10	10x10x10	4x4x4	800
Grodan Block Jumbo	15x15x10	6x6x4	1800
Grodan Block Hugo	15x15x14.2	6x6x6	2650
Grodan Block Uni-Block	20x20x10	8x8x4	3200
Grodan Block Big Mama	20.3x20.3x20.3	8x8x8	6400

Table 2.2

***QUALITY CHECK**

To ensure optimal and uniform initial wetting: Weigh a few sample blocks and confirm they meet the minimum wet weight advice specified in Table 2.2.

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Managing the Canopy During Phase 2

Vegetative growth is where the crop builds its physiological momentum. The objective is the rapid, balanced development of roots, leaf area, and branching to maximize light interception and establish the structural and metabolic capacity that will support flowering.
The canopy architecture and source capacity established in this phase set the ceiling for yield potential in every subsequent stage.

Shade avoidance must be actively prevented. When plants are overcrowded or light intensity is insufficient, they respond to low photosynthetic photon flux density (PPFD) with a shade-avoidance response, redirecting resources into rapid stem elongation in an attempt to outcompete neighbors for light. In its more severe form this produces etiolation — elongated, structurally weak stems with wide internodal spacing and thin tissue that may bend or collapse under future flower load. The resulting plant is both mechanically compromised and metabolically inefficient, with poorly distributed bud sites and asymmetric growth between the apical stem and lateral branches. The goal is the opposite: a compact, sturdy plant with tight internodes, achieved through adequate plant spacing and sufficient, uniform light intensity.

Light intensity should be managed deliberately through the Phase 1 to Phase 2 transition. At transplant, match the PPFD and mimic the climate conditions the plants experienced at the end of propagation for approximately 48 hours to minimize transplant stress and prevent light shock while the root system establishes contact with the block. Thereafter, increase PPFD incrementally and consistently until the target vegetative intensity is reached, allowing the developing canopy to acclimate to higher light loads without inducing stress.

Pruning during this phase should be limited to cleanup — removing shaded interior leaves and thin, spindly lower branches that fail to intercept light and contribute minimally to assimilate production. Any major structural training or topping should be completed in this phase while the plant retains the vegetative vigor to recover quickly and resume uniform growth before flower induction.

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Managing the Root zone During Phase 2

In each block place two **0.3-0.5 gallons per hour (gph)/1.2-2.0 liters per hour (lph)** drippers in opposite corners. Following transplanting, the blocks will be very wet and may not need irrigating, but it is important to keep the propagation plug hydrated until the roots can penetrate the block. To accomplish this, but avoid overwatering, it is advisable to provide a daily irrigation of ~1% of the substrate volume for ~1-3 days using the same EC as that used to saturate the block. This will ensure good contact between the plug and block.

The strategic objective throughout vegetative growth is to gradually lower the day-level WC% from field capacity at transplant to 65%, targeting 10% dry-backs overnight (P3) and 2-3% dry-backs between irrigation events in the P2 period. This will stimulate the roots to colonize the entire volume of the growing media. Use data from the GroSens root zone sensor to structure the irrigation strategy rather than setting a fixed schedule. The demand for water will initially be low, so it is important not to over-irrigate the block in the first days after transplanting. Irrigating too much will lead to algal growth on the block, slow plant development, and increased pest and disease pressure.

The EC in the block should be allowed to increase daily. An increasing EC in this phase will help to create a compact and resilient plant. The increase in EC will happen naturally through a combination of decreasing WC% and the realization of a low drain volume (0-10%). The pH in the block will increase due to strong uptake of nitrate. This is a normal reaction in this phase due to the fast vegetative growth response of the plant.

Ensure you have adequate 24-hour temperature and CO_2 in relation to light intensity. To promote fast growth and create compact plants only a very small difference in day-night temperature is required. Excessive elongation due to shade-avoidance response should be discouraged by ensuring plants are not overcrowded or overlapping. Overcrowding plants in the vegetative phase can create weak and elongated plant structure with strong asymmetry between the apical stems and lateral branches.

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Points of Special Interest

LED and transpiration

LED fixtures generate significantly less radiant heat compared to legacy HID (high-intensity discharge) lighting, reducing canopy temperature and transpiration per µmol of light delivered. Transpiration volumes in vegetative growth under LED are typically 10-20% lower than under equivalent-PPF HID lamps. Use GroSens WC% trend data rather than fixed schedules to determine the correct irrigation frequency and stop time.

Block EC target at flower induction

Aim to build the block EC to 3.5-4.5 mS/cm by the end of Phase 2. This elevated EC in the root zone creates a mildly generative pre-conditioning effect and reduces the risk of excessive vegetative response (stretch) in the first weeks of flowering.

Uneven root development in the vegetative phase creates canopy variability that compounds.

Uneven root development, unstable dry-backs, and poor irrigation timing during the vegetative phase create canopy variability that compounds through the rest of the cycle.

GroSens helps growers monitor root zone behavior in real time, making it easier to achieve:

- **Stronger Roots**
- **Uniform Plants**
- **Predictable Transitions Into Flower**

Build a more uniform crop from the root zone up.
Explore GroSens Suite.

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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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Designed to grow

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