

GROWING WITH

FAVEN

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01 PLANT PREP //01

a. VEGETATIVE PHASE 18/6

i. Limiting the amount of pruning during the vegetative phase is crucial to adding canopy depth to your facility. While a minor clean-up of lower leaves or branches too close to the substrate is a good practice, many lower branches will produce usable products and should not be removed at this point.

b. POST STRETCH DELEAF
- Day 21-25

i. We recommend a strategic deleaf of the large fan leaves to improve penetration of both top lights and your Faven units. Start with removing big fan leaves from the main stem, then identify any dense clusters of leaves. The goal is to have a mix of top and bottom lights in the center of the canopy.
Plant height could affect how pruning is performed. The cultivator will always have the best insight into their facility and genetics.
Note - please turn off your Faven units while performing plant work.

c. FINAL DELEAF

i. Many cultivators practice a “final strip” in the last two weeks of the flowering cycle, and this is still a good approach when using under canopy lighting.
This helps the plant mature uniformly; all flowers meet the same density, maturity, and color standards. This is done by removing the majority of fan leaves remaining on the plant.
Note - please turn off your Faven units while performing plant work.

02 INSTALL HEIGHT //02

a. SHORT PLANT SCENARIO
- Less than 4.5 feet

i. IIn short plant scenarios, we recommend placing the light at 8 or 10”, as long as the light does not sit below the substrate. These heights allow maximum coverage of the sub-canopy. After the first run, reassess to see if the light’s height needs to be increased.

b. TALL PLANT SCENARIO
- Greater than 4.5 feet

i. Cultivators who are growing plants over 4.5 feet tall see the need to place their lights higher in the canopy. We recommend starting at 12” height and increasing the position if needed. You can build your custom mounting systems. The two most common methods to support lights are making a PVC bracket or using unistrut to support them.

ii. Standard heights for these structures range from 15 inches to 18 inches high.

iii. Leaves and nodes below the placement of Faven lights should be cleared.

c. SUPPORT TYPES
-Adjustable and DIY Options

i. Faven offers an adjustable stand that supports 8”, 10”, and 12” settings.

ii. Complimentary metal clips for constructing DIY stands are also available. The clips can be used on various materials, including PVC, uni struts, or plastic pots, to create the ideal support height. Please email sales@favenlighting.com for more information.

03 LIGHT INTENSITY SCHEDULE //03

a. THE GOAL

i. The overall goal of under canopy lighting is to light the plant uniformly from top to bottom. This allows plants to use resources more efficiently, improve overall quality, and increase yield potential.

b. WHERE TO START
-and how to increase intensity

i. Early Start - Days 1-11: Faven units dim down to about 45% intensity. We recommend starting at this percentage and slowly increasing intensity over the next few weeks. We aim to reach the desired intensity by the end of week 3 of flower. It is not a race to max out your intensity. Take it slow and read your plants.

ii. Later Start - After Day 12: If you wait until later in flower to start using UC, it’s best not to race to increase intensity and take a slow approach. Start at around 60% intensity and increase by 5% every other day. Even with plants being more established later in flower, they still will have an adverse reaction if the light intensity is too high, too quickly.

c. PAR TARGETS

i. We recommend targeting 500-800umol in the bottom half of your plant. It's safe to push higher amounts of umol on the buds closest to the light to achieve greater umol higher in the canopy.
The most significant yield potential lies in the middle of the plant. Do your best to mix top and bottom light in the middle of your plants.

d. WHEN TO DECREASE

i. Some genetics benefit from reducing light intensity during the final two weeks of flowering. A slight tip burn on the lowest buds usually identifies the need to reduce lights. To combat this, lower light intensity by 20%. If you feel the need to reduce more, then do so.

BEST PRACTICES //04

a. LIMIT UNDER CLEARING OR SKIRTING

i. Adding canopy depth to your plants will make the most significant yield gains. This means reducing the amount of under-clearing typically practiced in cultivation. While removing leaves that block light penetration is still a good practice, leaving most of the nodes that would normally be removed is the best approach to increasing yield with under canopy lights.

b. LOWERING FIRST TRELLIS

i. Reducing the amount of under-clearing means there will be much more weight on the lower ⅓ of the plant. If not adequately supported, this will cause branches to droop and hang on to the lights. Lowering the first trellis to about 2-4 inches above the under canopy light will support these branches and keep buds from touching and blocking the lights.

ii. If the buds touch the light directly, they will begin to burn. Keeping them 1" away from the lights will prevent any degradation of the final product.

c. WIPE DOWN LIGHTS
after the final IPM spray

i. Once the final IPM spray has been administered, wiping the lights down with a damp microfiber rag is best. This will remove any residue that could block the light from penetrating upwards.

D.5 CULTIVATION CHANGES //05

a. FERTIGATION CHANGES

i. Favens increase the demand on your plants, so you must provide additional resources to handle the increased demand.

b. IRRIGATION VOLUME

i. A typical irrigation volume increase in plants is around 10-15%. This change will be easy to manage if you are using substrate sensors. The extra volume can be mitigated by extending the duration of your P1 sequence during stretch and ripening. During bulking, this demand can be met by pushing out your final P2 event later in the day.

c. FERTILIZER INPUT

i. The need to increase fertilizer input varies from facility to facility. If you start to see a deficiency, we recommend starting at a 10% increase in EC input throughout the flowering process. For example, if you feed at a 3.0 EC, increase to 3.3 EC and see how your plants respond. If you need to increase input further, then do so. We believe in a less is more approach. Be careful not to over-fertilize.

d. ENVIRONMENTAL CHANGES

i. Increased transpiration rates will increase humidity in your grow rooms. Add 10-15% more dehumidification capacity to offset this extra humidity. You should not notice any environmental changes if you already have extra capacity built into your facility.

ii. Demand for HVAC will increase as under canopy lights add BTUs. However, most of this extra heat is localized to the lower canopy and often does not affect the HVAC's ability to control temperatures. Similarly to dehumidification, if you already have extra capacity in your facility, you may not experience any environmental changes. Re-Heat systems are capable of handling extra demands.

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D.6 POTENTIAL PLANT STRESSORS

//06

a. INCREASING LIGHT INTENSITY TOO QUICKLY

i. Slowly increasing the intensity of your under canopy light will limit any light stress your plant experiences. Slow and steady intensity increases are the best way to prepare plants to receive light from underneath. A 5% intensity increase every other day is a good rule of thumb.

b. WATER STRESS

i. Under canopy, lighting will increase the demand on your plants. Meeting this extra demand with increased water volume is vital for maintaining a healthy crop. Substrate monitoring systems are a massive help in managing water volume. You can expect a 10-15% increase in your plants' water needs.

c. NUTRIENT DEFICIENCY

i. Similarly to water volume, you may experience a need to increase your input EC. This is common, but not all cultivators experience this need. If you note a nutrient deficiency, we recommend increasing input EC by 10% to start. This should alleviate any nutrient issues experienced from under canopy lighting.

LIGHTING INNOVATION LIGHTING INNOVATION LIGHTING

LIGHT UP.

And get growing!

BREAKDOWN, CLEANING & STORAGE

Every facility will have a different process for removing fixtures during harvest. We have found it easier to harvest plants before removing Faven units. Always be sure to remove lights before foaming or cleaning the room.

BREAKDOWN

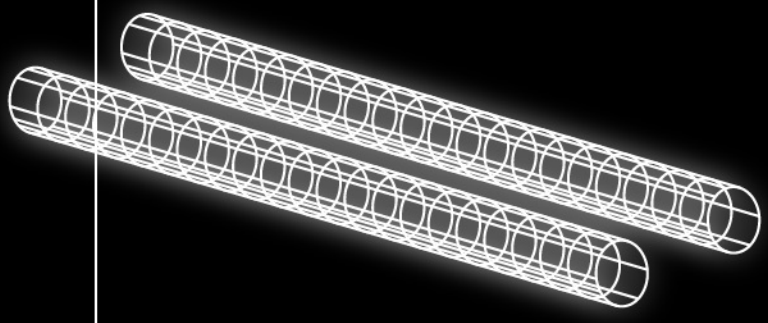
1. Turn off power at the controller or main panel to be sure fixtures are not live.
2. Unplug the power cord and any additional cordage from the fixtures.
3. Begin unclipping units from one another.
4. Gently lift on the joint, allowing fixtures to separate.
5. Remove units from the grow room.
6. Most facilities prefer to clean units outside of their grow rooms.

CLEANING

1. Allow lights to cool down before starting the cleaning process.
2. Use damp, soft clothes and polycarbonate-safe cleaning products such as Simple Green to wipe down lighting fixtures.
3. Do not use any chemical detergents to clean.
4. Do not spray water or use water mist to clean.
5. Do not use a dry cloth, as it may scratch the lens.
6. Check the connection ports after every maintenance.

STORAGE & DISPOSAL

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GROWING WITH CHROMA

HOW TO USE FAR RED: 730NM

a. INCREASED COLOR PRODUCTION

i. Our initial tests indicate that independent FR increases color production with as little as 5 minutes of treatment after the top lights are turned off. In side-by-side tests, the group that received 5 minutes of FR treatment after lights off displayed more purple flowers than the control group without FR treatment.

ii. Try this tactic by programming the FR channel on the Chroma to turn on for 5 minutes after the top lights are off. We recommend starting this treatment during weeks 1 to 2 of flower.

iii. The FR channel can also be used when lights are on. We recommend introducing daytime FR with any R4-R9 combination after plants have finished their "stretch" or "stack" period. Using FR before this period has ended could result in stretchy plants with a diminished stack, which could negatively impact yield.

b. REDUCING FLOWER TIME

i. Our initial tests indicate that independent FR usage can reduce the time it takes for flowers to ripen. Up to 7-10 days in some cases. This would lead to additional production days for more yearly flower cycles. More runs per year would add up to 20% revenue to each flower room.

ii. Example:

   a. Typical flower cycle is 63 days = 5.7 Possible runs per year

   b. FR flower cycle 56 days = 6.4 Possible runs per year

iii. To achieve these results, use FR independently after the top lights turn off. 5 minutes of FR should be enough to trigger this plant response. We recommend starting this treatment during weeks 1 to 2 of flower.

HOW TO USE SPECTRUM CONTROL

a. SPECTRUM BREAKDOWN

i. R4-R5: These are cooler spectrums with more blue and green. They are great for root development and can reduce stretch and tighten node spacing. We recommend using these spectrums early in flower - weeks 1 to 3.

ii. R6-R7: These are very balanced spectrums. They are great for healthy canopy development and increasing the size of budsites. We recommend using these spectrums during bulk - weeks 4-7.

iii. R8-R9: These are warmer spectrums. They are great for increasing color production and the quality of the final product. We recommend using these spectrums during ripening - weeks 8-9.

The "R" value refers to the percentage of red light in the fixture's spectrum. For example, R4 through R9 represents a range of 40% to 90% red, with higher R values indicating a more red-dominant output.

"R" values indicate the percentage of red light output.
Ex. R4-R9 equaling 40-90%

8 Week Production	
Week 1-3	R4-R5
Week 4-6	R6-R7
Week 7-8	R8-R9

9 Week Production	
Week 1-3	R4-R5
Week 4-7	R6-R7
Week 8-9	R8-R9

Disclaimer: Far Red (FR) is potent. A little can go a long way. There is still much research that needs to be done to understand the use and boundaries of FR usage fully. With our current understanding, we recommend limiting its use in your first tests to know how your facility and genetics will respond.

THIS PAGE IS ONLY APPLICABLE FOR CHROMA USERS

IMPLEMENTATION GUIDE

PLANT PREPERATION

1. Limit pruning on plants slated for under canopy (UC) application.
   A. It's best to not under clear or "skirt" until a few weeks into flower. This gives growers time to observe how the plants are responding to UC.
   B. A small amount of de-leafing to promote upward light penetration is beneficial.
      I. Error on de-leafing lightly and removing more leaves later, if needed.

INSTALL HEIGHT

1. Be sure you have legs or a base for Faven units to rest on.
2. Install height will be different for each facility.
   A. The lowest placement height should be level with the top of the substrate.
   B. The taller the plants you grow, the higher the light placement.

INSTALLING FAVEN

1. Connect the lights, starting at the end, to the power supply.
   A. Be sure the lights are straight and connected directly to each other.
2. Once lights are installed, place the water seal cap on the end of the last light.
   A. The cap is a small gray piece of rubber with power cords in the bag.
3. Run the accessory wire to the controller.
4. Set the controller to 45%-50% intensity
5. Set on/off time
6. Plug the power cord into the light.
   A. Tighten the nut on the power cord until it is snug; be sure not to over-tighten.
7. Plug the Faven power cord into an outlet.

LIGHT INTENSITY

1. Day 1 of flower, turn Faven units on to 45%-50%.
2. Slowly increase the intensity to 100% by day 18-21 of flower.
   A. It is not a race to full intensity. The goal is to apply light to the lower canopy early, allowing lower buds to develop at the same rate as those at the top of the canopy.
3. Ramping down light intensity at the end of flower can be used to maintain the quality of the buds closest to the light.
   A. This is not a necessity but can be used if needed

BREAK DOWN/ CLEANING

1. Harvesting plants first is the most straightforward approach for most facilities.
   A. Remove lights before foaming/cleaning the room.
2. Unclip lights by gently lifting the joints.
3. Remove the lights from the room and stage for a wipe-down.
   A. Use damp clothes with polycarbonate-safe cleaning products.
4. Store in a safe place.

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