

THE EMERALD CONFERENCE

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Utilizing Cannabis Cultivation Metrics to Enhance Performance

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GH - A

32g flower/ft²/cycle

100,000 ft ²	28K lbs flower/yr
4 turns/ft ² /yr	128g/ft ² /yr
3 WK veg/9 WK Flw.	Longer turn to cash
12 harvests/yr	~33,000 ft ² /cycle
Labor	Inconsistent
Location	CA – High DLIs
Energy Cost	\$0.38/kWh
Drying	Strained
Crop Density	1 plant/1 ft ² (1p/ft ²)
Price/lb (P&S)	\$550-P & \$250-S
P:S ratio	40/60 (\$370/lb)
Revenue/year	\$10.3m

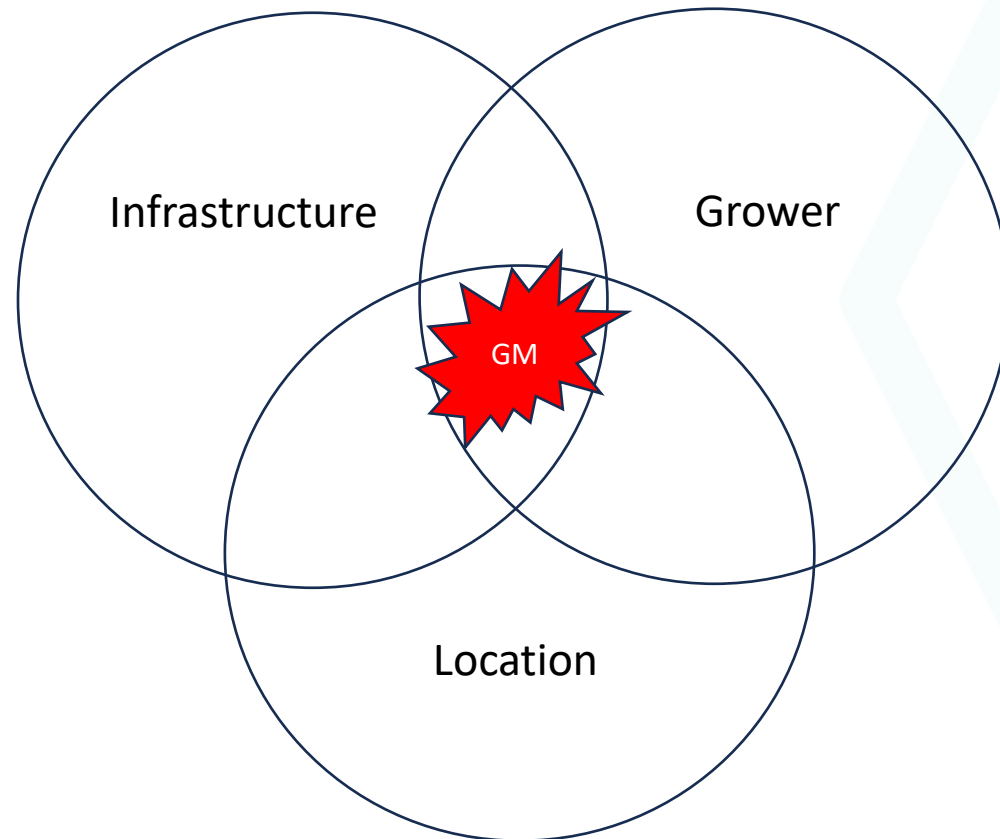
GH - B

32g flower/ft²/cycle

100,000 ft ²	45.8K lbs flower/yr
6.5 turns/ft ² /yr	208g/ft ² /yr
2 WK veg/7.5 WK Flw.	Shorter turn to cash
52 harvests/yr	~12,500 ft ² /cycle
Labor	Fixed and consistent
Location	CA – High DLIs
Energy Cost	\$0.38/kWh
Drying	Adequate
Crop Density	1 plant/ 3 ft ² (0.3p/ft ²)
Price/lb (P&S)	\$550-P & \$250-S
P:S ratio	60/40 (\$430/lb)
Revenue/year	\$19.7m

A Successful Cultivation Business

- Top 3 Qualifying Attributes:
 - Location
 - Infrastructure
 - Grower
- The 4 Pillars of Cultivation Production
 - Unit Yield
 - Unit Energy
 - Unit Area
 - Unit Time



The Golder Metric of Cultivation Performance

Photon Conversion Efficiency (PCE) reflects the efficiency with which light energy is converted into biomass. More specifically, it's the ratio of the number of photons absorbed to the number of photons converted into useful energy.

A higher PCE means that more of your light energy is producing useful energy, which leads to higher overall system efficiency and yield. In photosynthetic systems, a higher PCE means more of the absorbed photons are being utilized to drive the photosynthetic process. This results in a higher rate of biomass production from the same amount of light energy.

When discussing cannabis flower production or biomass yield in general, the unit of measure for PCE is grams per mole (g/mol) of photosynthetically active radiation (PAR) light. You can apply this to a single square foot, cycle or year (g/mol/ft²/cycle). To maximize yield with light, it is important to design photosynthetic systems that have high photon conversion Efficiency. This can be achieved through optimization of the system's materials, structure, light design, crop density and other operating conditions.

-Can Growers Capture More Light?, Cannabis Business Times, Travis Higginbotham, 2024

Grower Performance

mg THC/ft²/yr

Grower	Grower 1	Grower 2
Yield/ft ² /cycle	32	32
Turns/ft ² /year	4	6.5
Total g Flower/ft ² /yr	128	208
Canopy square footage	100000	100000
Lighting in Veg (umol/m ² /s)	300	300
Photoperiod (hrs)	18	18
Veg Duration (wks)	3	2
Daily DLI (mol/m ² /day)	19	19
Total DLI in Veg (mol/m ² /cycle)	408	272
S. Lighting in F. (umol/m ² /s)	500	500
Photoperiod (hrs)	12	12
Flower Duration (wks)	9	8
Daily DLI (mol/m ² /day)	22	22
Total DLI in F. (mol/m ² /cycle)	1361	1210
Total DLI Veg & Flower	1769	1482
Total DLI/yr	7076	8446
PCE	0.19	0.26
Grower performance % increase		36%

Thank you

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