



Cultivation: Increase Yield and Quality

Elevate Your Operation with Onsite Cannabinoid Testing

Easy access to real-time cannabinoid content is a game-changer for cultivation operations. Accurate on-site cannabinoid data lets sophisticated cultivators rapidly identify desirable genetics, harvest at peak, fine-tune grow inputs and deliver consistent, quality product.

LightLab 3 Cannabis Analyzer is a fit-for-purpose HPLC, ensuring non-technical team members can rapidly produce laboratory-grade results. Despite its user-friendly workflow, LightLab's performance and accuracy is uncompromised. LightLab is a top-tier performer in the NIST Cannabis Quality Assurance Program (CannaQAP) which included over 100 labs across the United States.

Executive Summary

- Support real-time, data-backed decisions within your organization with on-site testing.
- Over five standard testing-touch points, from breeding program to harvest, directly impact quality, waste, yield, COGs and margins.
- Genetic and environmental conditions impact plant productivity and consistency. Mitigation can often be addressed through the application of LightLab testing data.

AT-LINE TESTING TOUCH-POINTS



Phenotyping in Breeding Programs

A successful breeding program, whether it starts with seeds or clones, requires a clear objective. Developing your own seeds, or stabilized cultivar, provides the opportunity to emphasize characteristics that support your brands' competitive edge, meet customer preferences for specific cannabinoids, and respond to varied growing conditions. Phenotyping coupled with access to real-time, on-site cannabinoid test data can be used to rapidly inform which genetics are carried forward, more confidently than ever.

Selecting Clones

Once several clones are established, it is possible to measure the THC:CBD ratio of the clones. By selecting clones based on desired cannabinoid ratios, the end product will remain consistent and finely tuned to current product requirements. Protect your genetic lines and identify outliers in young plants.

Example: Three cultivars were cloned and grown large enough to remove material for testing. The material was analyzed on a LightLab by a team member, revealing that cultivar #1 returned 2% THC-A and 2% CBD-A, which is the 1:1 ratio this particular grower wanted. The under-performing plants were terminated, and the desired plant was selected for continued growth.

Harvest Timing

Once plants begin to flower, testing the plants regularly with a LightLab will help determine when to harvest. Lights, nutrients, labor and other inputs cost money. Harvesting at peak cannabinoid content can save tens of thousands in energy/nutrient costs, and hundreds of thousands of dollars annual at scale if plants are not matured to maximum potential. Market demand for products with elevated potency reinforces the benefits of understanding each cultivar's cannabinoid conversion behavior, in order to maximize each cycle.

- Continue on back -



Harvest Timing Continued

Example: At the start of the flowering stage, a particular cultivar contained 3% CBGA, and 3% THCA. As the plant progressed, the CBGA peaked at about 6% and then began to drop. Once the CBGA dropped below 1% and the THCA reached 18%, it was clear the plant would not produce more THCA and was harvested at peak cannabinoid productivity. If the final product contains high CBGA values, it was harvested too early so testing with the intent of watching CBGA drop will allow you to maximize yield.



Grow Optimization

During the grow cycle, yield consistency and quality can be monitored with LightLab. Testing the cannabinoid content of different plants within the room/field, as well as different locations on a single plant, will identify lighting hot spots and opportunities to optimize nutrients and produce a more consistent, cannabinoid-rich yield across the cultivation.

Example: A grower found that plants near the corner of the grow room were consistently producing low cannabinoid content as compared to the other plants in the room. By adding lights and ensuring good coverage, the issue was eliminated. Product consistency improved, and ultimately the cultivator was able to improve footprint productivity and sell the flower at a higher price.



Curing

A curing process which has not been thoroughly vetted can reduce the overall value of a product. Determining THCA/D9THC ratios will help determine if the curing method is resulting in any degradation and screen for problems.

Example: A grower uses forced air to cure product. They found that when using heated air, they could speed up the curing process. When the product was measured on a LightLab, D9THC levels were above 5% and terpenes were low which indicated that the curing process was partially decarboxylating THC, and likely also resulting in lost terpenes, reducing the value of their product.



LightLab 3 Cannabis Analyzer

Orange Photonics' LightLab 3 Cannabis Analyzer is a purpose-built HPLC capable of quickly and accurately determining the content of 19 cannabinoids and semi-quantitative terpenes in almost any cannabis-containing product. Utilizing the same liquid chromatography technique favored by nearly all cannabis laboratories, LightLab 3 is an economical way to bring laboratory analysis into your facility.

Scan the QR Code to view, share or generate a COA for a flower sample analysed on LightLab 3.

