Digamma Consulting

THC Optimization Through Proper Harvest Time

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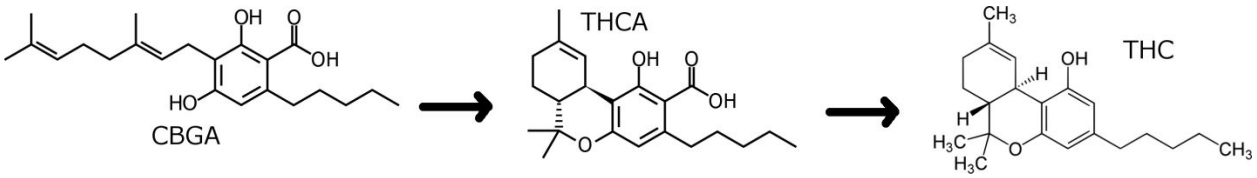
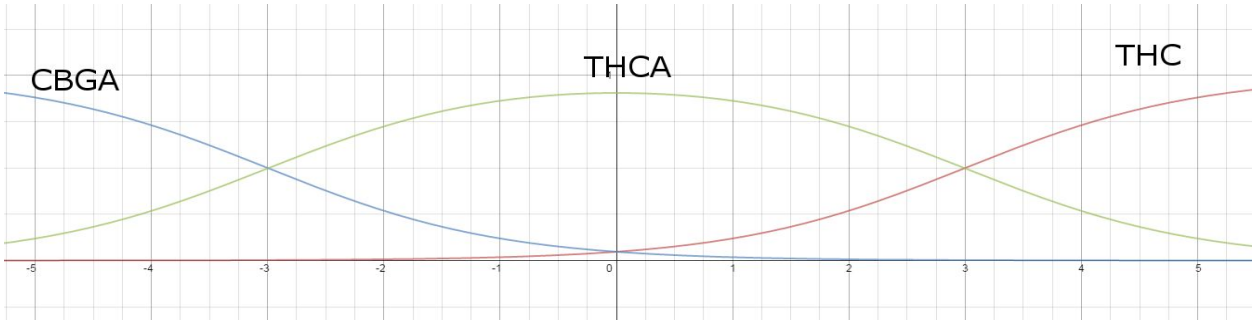
THC	Tetrahydrocannabinol
THCA	Tetrahydrocannabinolic acid
CBGA	Cannabigerolic acid
CBN	Cannabinol

To optimize a strain's THC content, the ideal harvesting time must be picked. To understand the ideal harvesting time, it is critical to understand how THC is made in the plant tissue. THCA is made from CBGA, its chemical precursor. THCA degrades into THC as it decarboxylates when exposed to oxygen for excessive periods of time or when heated to very high temperatures for a brief period:

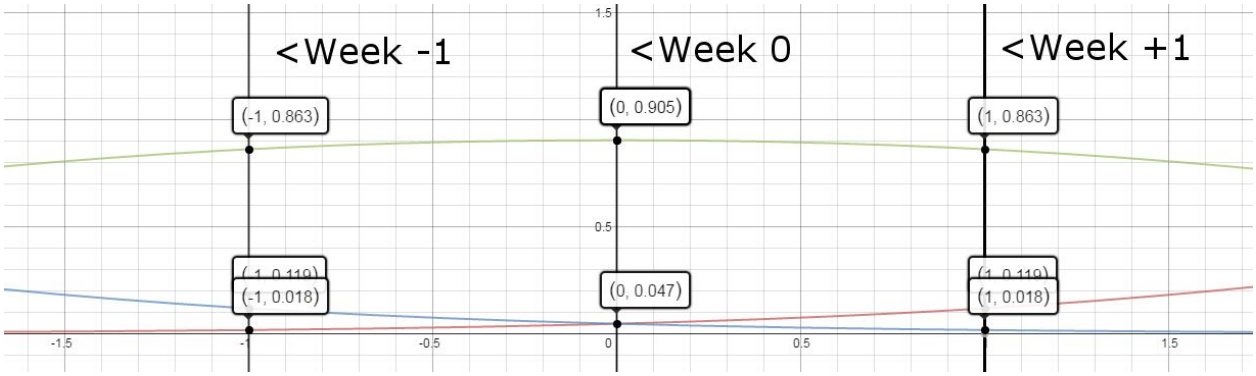


A plant that is harvested early will show high levels of CBGA, which indicate the cannabinoid content of the strain had not yet reached maturity. Conversely, when a strain is harvested too late, the THCA crystals begin to degenerate into THC through decarboxylation and CBN through oxidation, adversely affecting the quality of the Cannabis. A strain testing high in CBN and decarboxylated THC was harvested too late for optimum THC content. An optimized harvest time will have the maximum amount of THCA, and the lowest possible amounts of CBGA, CBG, THC, and CBN.

Let's consider an illustration of the above three cannabinoids over time as a plant approaches and passes maturity for an optimum THC harvest:



On the left of the graph is the earlier time in the life cycle when the THC has not yet optimized. Here we see high levels of CBGA and low THCA, and THC. In the center of the graph is when THCA is at its maximum, and CBGA and THC are relatively low. After this point, as the product passes maturity and begins to lose potency, we see the THCA is converted to THC through decarboxylation.



Let's consider the above example.

WEEK -1

Week -1 is a week too early for harvest, and this time interval can be seen on the left. The THCA represents about 86% of the cannabinoid content, and CBGA represents about 12% of it. This is the profile of a plant that was harvested too early for that strain's life cycle.

WEEK 0

Week 0 was harvest right on time. We see a 90% of the cannabinoids are represented by THCA, and CBGA and THC are equal at about 5% of the cannabinoid content.

WEEK +1

Week +1 was harvested too late for the strain type. We see again a 86% relative THCA content, with a 12% relative THC content.

SOLUTIONS

Submitting a half gram sample from a live plant one to three times per week for a few weeks around the approximate harvest time can let a grower known when a certain strain's THC will be optimized for harvesting. By simply looking at the lab results of the cannabinoids over time, the optimized time can quickly be discovered. Once discovered, the optimum harvest time, under the same growth conditions, remains relatively unchanged for plants of the same strain (direct clones). Different strains have wildly different optimum harvest times, ranging from around 60-day for "shake-n-bake" THC strains to 120-day for rare high CBD strains.

This technique can also be applied to cannabis grown for its content of other cannabinoids, such as cannabidiol (CBD), tetrahydrocannabivarin (THCV), and cannabichromene (CBC), all of which are also derived directly from CBGA in their cannabinoid acid forms.