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The testing method adopted by the USDA to test delta-9 tetrahydrocannabinol (THC) concentrations should be high performance liquid chromatography (HPLC) and not gas chromatography (GC) because GC creates the very molecule that it is measuring. HPLC does not.

One of the primary issues affecting hemp and hemp growers is the testing method used to determine whether the crop is lawful hemp or unlawful marijuana. Aside from being grown pursuant to the regulations, whatever they turn out to be, the ultimate determinant of whether a cannabis crop is lawful or not is the concentrations of delta-9 THC it contains. Specifically, a concentration that does not exceed 0.3% is lawful, and a concentration in excess of 0.3% is unlawful. Due to this bright line division, a farmer who chooses to grow hemp does so at great risk. This risk should not be exacerbated by a testing method which increases the concentration of the very molecule it is measuring.

Unfortunately, a widely used and promoted testing method for hemp is GC. Generally speaking, GC heats a sample to produce a vapor from which measurements can be taken. One of the features of THCa, which is the lawful acid form of THC, is that it undergoes a chemical process called decarboxylation when heated. Decarboxylation causes the molecule to lose a carbon ring, and is converted to its neutral form. This neutral form is known as delta-9 THC, which is the molecule that is being measured to determine the lawful status of hemp. In a very real way, the GC test creates the very molecule being measured. This is akin to a blood alcohol test that increases the levels of alcohol in the blood it is measuring, or to a radar gun that increases the speed of the car that it is measuring. Under any reasonable analysis, the GC test is not appropriate for hemp. In contrast to GC, HPLC does not convert THCa to delta-9 THC. Moreover, it is a widely used and highly accurate testing method. For volatile compounds, such as THC (and terpenes, also found in the cannabis plant), HPLC is the proper and appropriate testing method due to its accuracy and the fact that it does not convert the molecules it is measuring to other molecules.

Due to the radically increased risk to farmers of having an otherwise lawful crop be deemed illegal, the GC method necessarily causes farmers to seek out plant strains that have very low levels of both delta-9 THC and THCa. This is the case despite the fact that THCa is lawful and not part of the statutory definition of hemp. In addition to having its own health benefits, the primary problems with farmers seeking out low THCa strains are (1) that such strains do not exist in abundance, and (2) the levels of THCa and cannabidiol (CBD) in a plant are roughly correlated. This is to say that the lower the THCa in a given plant strain the lower the relative levels of CBD. Most of the current market for hemp is due to the rapid increase in the use of, and desire for, CBD by consumers. The value of a farmer's hemp crop is usually tied to the amount of CBD that can be extracted from it. Since the use of the GC method necessarily causes farmers to seek out and use low THCa strains, the effect is that they use low CBD strains. This negatively impacts their bottom line, often dramatically.

THCa is not psychoactive. Most hemp is currently grown for CBD, which is extracted and used in consumer products that do not get people "high". Even when decarboxylated by combustion, as when someone smokes or vaporizes a raw hemp flower, the decarboxylated THCa is insufficient to cause a psychoactive effect. In other words, and aside from the statutory definition of hemp contained in the Agricultural Improvement Act of 2018, there are no public health concerns that are implicated by using a testing method, such as HPLC, that does not decarboxylate the THCa contained in hemp. On the other hand, using GC creates unnecessary additional risk for farmers and has the direct effect of causing them to lose money.

For the reasons stated above, I request that the USDA adopt HPLC as the testing method for measuring delta-9 THC in hemp crops.

I am an attorney who represents hundreds of farmers and businesses in the hemp industry. The concerns addressed above are shared by my clients.

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First Name:
Rod

Last Name:
Kight

City:
Asheville

Country:
United States

State or Province:
NC

This information will **not** appear on Regulations.gov:

Mailing Address:
84 West Walnut Street

Mailing Address 2:
Suite 201

ZIP/Postal Code:
28801

Email Address:
rod@kightlaw.com

Fax Number:
828-255-9886