

**REPORT OF THE SECRETARY OF  
AGRICULTURE AND FORESTRY AND THE  
SECRETARY OF HEALTH AND HUMAN  
RESOURCES**

**Report on Standards for  
Hemp-Derived Oils (Chapter  
653, 2019 Acts of Assembly)**

**TO THE GENERAL ASSEMBLY OF VIRGINIA**



**HOUSE DOCUMENT NO. 13**

**COMMONWEALTH OF VIRGINIA  
RICHMOND  
2019**



# **REPORT ON STANDARDS FOR HEMP-DERIVED OILS**

---

**BETTINA RING**  
**SECRETARY OF AGRICULTURE AND**  
**FORESTRY**

**DANIEL CAREY, M.D.**  
**SECRETARY OF HEALTH AND HUMAN**  
**RESOURCES**

---

**November 1, 2019**

## **Report on Standards for Hemp-Derived Oils**

---

### **PUBLICATION YEAR 2019**

#### **Document Title**

Report on Standards for Hemp-Derived Oils

#### **Author**

Secretary of Agriculture and Forestry Bettina Ring  
Secretary of Health and Human Resources Daniel Carey, M.D.

#### **Legislative Mandate**

Chapters 653 and 654 of the 2019 Acts of Assembly

#### **Executive Summary**

Chapters 653 and 654 of the 2019 Acts of Assembly direct the Secretaries of Agriculture and Forestry and Health and Human Resources (“Secretaries”) to prepare a report on the appropriate standards, if any, for the production of an oil with a tetrahydrocannabinol (THC) concentration of no greater than 0.3 percent that is derived from industrial hemp. The Secretaries have determined that standards for hemp-derived oils intended for human consumption are appropriate and necessary. Recommendations for legislation or regulation to establish such standards are outlined within the Report on Standards for Hemp-Derived Oils.

## **Report on the Standards for Hemp-Derived Oils**

Chapters 653 and 654 of the 2019 Acts of Assembly direct the Secretaries of Agriculture and Forestry and Health and Human Resources (“Secretaries”) to prepare a report on the appropriate standards, if any, for the production of an oil with a tetrahydrocannabinol (THC) concentration of no greater than 0.3 percent that is derived from industrial hemp. To develop this report, the Secretaries convened on four occasions from June 2019 through September 2019. One of these meetings, on September 4, 2019, was a public meeting at which the Secretaries received comment from stakeholders on potential areas of regulation, as they pertain to industrial hemp-derived oils intended for human consumption. Notice of this meeting was posted on the Commonwealth Calendar. Representatives from the Cannabis Business Association of Virginia and Virginia Industrial Hemp Coalition as well as two industrial hemp registrants attended and provided comments on areas including product adulterants, labeling, and testing. See Appendix One for a transcript of this meeting.

### **BACKGROUND**

While this report offers standards for an industrial hemp-derived oil, a decidedly broad category of products, industrial hemp-derived cannabidiol (CBD) oil products are currently the most common industrial hemp-derived extracts consumed. CBD is one of almost 100 cannabinoids present in the flower of the cannabis plant. CBD oil and CBD products that are intended for human consumption and derived from hemp (capsules, tinctures, oral sprays, and edibles, among others) are being sold both online and in a variety of retail locations. Consumers purchase these products for a variety of desired health benefits, and the products are often advertised as a treatment for a variety of health conditions, including anxiety and inflammation.

In the years since the enactment of federal and state laws regarding industrial hemp cultivation, the U.S. hemp industry’s interest in growing hemp for its grain and fiber has shifted to an interest in growing high-CBD varieties of hemp for CBD oil and CBD product production. According to data compiled by New Frontier Data, the total sales for the U.S. hemp industry totaled \$820 million in 2017 and is expected to grow to \$1.9 billion by 2022.

The federal and state regulation of industrial hemp-derived oils has not kept pace with the hemp industry’s development, leaving uncertainty as to product quality and safety. This report will outline relevant industrial hemp and food safety laws, provide examples of other states’ attempts at regulating hemp-derived oils, and provide a recommendation for appropriate standards for the production of hemp-derived oils.

### **RELEVANT INDUSTRIAL HEMP-RELATED PROVISIONS OF FEDERAL AND STATE LAW**

#### **2014 FARM BILL**

Section 7606 of the federal Agricultural Act of 2014 (Section 7606) permitted an institution of higher education or a state department of agriculture to grow or cultivate industrial hemp if (i) the industrial hemp is grown or cultivated for purposes of research conducted under an agricultural pilot program or other agricultural or academic research and (ii) the growing or

cultivating of industrial hemp is allowed under the laws of the state in which such institutions of higher education or state department of agriculture is located and such research occurs. Section 7606 defines industrial hemp, in part, as *Cannabis sativa L.* with a delta-9 THC concentration of not more than 0.3 percent.

#### VIRGINIA INDUSTRIAL HEMP LAW, ENACTED 2015, AMENDED 2018

The Virginia Industrial Hemp Law (Va. Code § 3.2-4112 et seq.) was enacted by the 2015 Session of the General Assembly and authorized the Commissioner of Agriculture and Consumer Services (Commissioner) to establish and oversee an industrial hemp research program directly managed by public institutions of higher education. In an effort to allow Virginia farmers to take full advantage of Section 7606, the Virginia Department of Agriculture and Consumer Services (VDACS), with the Administration's approval, successfully pursued legislation during the 2018 Session of the General Assembly that amended the Virginia Industrial Hemp Law to create a new industrial hemp research program, in addition to the existing higher education industrial hemp research program, that is managed by VDACS. The enacted legislation also replaced the industrial hemp grower licensure program with a registration program for industrial hemp growers and processors.

#### 2018 FARM BILL

The federal Agricultural Act of 2018, which was enacted on December 20, 2018, includes numerous industrial hemp-related provisions that, in part, eliminate the aforementioned research requirement of the 2014 Farm Bill and allow for the commercial production of industrial hemp. The 2018 Farm Bill establishes a new definition of "hemp" and removes hemp from the definition of "marihuana" in the federal Controlled Substances Act. The new definition of "hemp" retains the restriction upon the THC concentration of a cannabis plant in order for that plant to be "hemp" – hemp shall not have more than 0.3 percent THC on a dry weight basis. The new definition explicitly states that all derivatives, extracts, and cannabinoids of "hemp" are also considered "hemp."

The 2018 Farm Bill also explicitly states that its hemp provisions do not affect or modify (i) the U.S Food and Drug Administration's (FDA) authority regarding the federal Food, Drug, and Cosmetic Act (FD&C Act) or the Public Health Service Act or (ii) the authority of the FDA Commissioner and U.S. Secretary of Health and Human Services pursuant to these laws.

#### 2019 INDUSTRIAL HEMP-RELATED AMENDMENTS TO THE CODE OF VIRGINIA

Chapter 653 and 654 of the 2019 Acts of Assembly, the results of companion bills, House Bill 1839 (D. Marshall) and Senate Bill 1692 (Ruff), in part, respond to certain industrial hemp-related provisions in the 2018 Farm Bill. This legislation amended the definition of "industrial hemp" to mirror the 2018 Farm Bill's definition of "hemp," eliminated the industrial hemp research programs, and included provisions intended to clarify the legality of products derived from industrial hemp.

The legislation amended the Virginia Drug Control Act's definition of "cannabidiol oil" to exclude industrial hemp, as defined in the Virginia Industrial Hemp Law, "that is grown, dealt, or processed in compliance with state or federal law." The legislation also amends the Virginia Drug Control Act's definition of "marijuana" to exclude a hemp product, as defined in the Virginia Industrial Hemp Law, containing a THC concentration of no greater than 0.3 percent that is derived from industrial hemp that is grown, dealt, or processed in compliance with state or federal law.

## **FDA AND VDACS'S FOOD SAFETY PROGRAM**

Federal and state food safety laws support the general requirement that an ingredient in a food product, including a dietary supplement, must be an approved food additive from an approved source. Under the FD&C Act, a food additive must be approved by FDA or be the subject of an FDA Generally Recognized As Safe (GRAS) notification before it is used in a food. To date, FDA has issued GRAS notifications for the following hemp plant parts or products: hulled hemp seed, hemp seed protein, and hemp seed oil. No other cannabis plant part or compound has been approved as a food additive.

A food manufacturer is deemed an "approved source" if it is under inspection by FDA or a state regulatory agency with authority to administer the state's food safety laws. Under the FD&C Act, the FDA adopted 21 C.F.R. Part 110, Current Good Manufacturing Practice in Manufacturing, Packing, or Holding Human Food (GMP), with which a food manufacturer must comply in order to be deemed an "approved source." GMPs help define whether food (i) has been manufactured under conditions that are unfit for food or (ii) has been prepared, packed, or held under insanitary conditions whereby it may have become contaminated with filth or been rendered injurious to health. The GMP includes provisions related to (i) disease control and cleanliness among personnel, (ii) sanitary operations, (iii) sanitary facilities, including water supply and toilet and hand-washing facilities, (iv) equipment and utensils, and (v) processes and controls for raw materials. A manufacturer of a dietary supplement is deemed an "approved source" if it operates in compliance with 21 C.F.R. Part 111, Current Good Manufacturing Practice in Manufacturing, Packaging, Labeling, or Holding Operations for Dietary Supplements, which includes requirements for process documentation and requirements that ensure dose consistency.

VDACS's Food Safety Program administers Virginia's Food and Drink Law and regulations adopted thereunder and ensures that any food or beverage manufactured, produced, processed, packed, exposed, offered, possessed, or held for sale is safe for human consumption. This law and regulations, in part, require food manufacturers in Virginia to use approved ingredients from approved sources. Many of the regulations administered by the Food Safety Program adopt by reference regulations related to food for human consumption adopted by FDA under the FD&C Act. Generally, this program follows FDA's GRAS determinations when assessing whether a food ingredient is approved and deems a food manufacturer to be an approved source if it is manufacturing food in compliance with the food laws of the state in which it is manufacturing.

In June 2018, FDA approved as a drug Epidiolex (cannabidiol) oral solution for the treatment of seizures associated with Lennox-Gastaut syndrome and Dravet syndrome. The U.S. Drug

Enforcement Administration (DEA) subsequently classified “Approved Cannabidiol Drugs” as a Schedule V controlled substance while retaining its classification of both “marihuana” and “marihuana extract[s]” as Schedule I controlled substances. Under the FD&C Act, the active ingredients in an FDA-approved drug may not be introduced into the food supply or marketed as a dietary supplement. FDA has advised that it is unlawful to introduce food containing added CBD into interstate commerce or to market CBD as or in a dietary supplement because it is an active ingredient in an FDA-approved drug and was the subject of substantial clinical investigation before it was marketed as a food or dietary supplement. However, FDA’s sole enforcement action addressing hemp-derived CBD products to date has been to issue warning letters to companies selling CBD products with claims that the products prevent, diagnose, treat, or cure a disease.

Following the enactment of the 2018 Farm Bill, the FDA commissioner at that time, Scott Gottlieb, M.D., issued a statement regarding FDA’s regulation of products containing cannabis and cannabis-derived compounds that reiterated FDA’s position on CBD but acknowledged the “proliferation of products containing cannabis or cannabis-derived substances” and Congress’s interest “in fostering the development of appropriate hemp products.” Commissioner Gottlieb’s statement provided that FDA will “continue to evaluate and take action against products that are being unlawfully marketed and create risks for consumers,” but is “committed to pursuing an efficient regulatory framework for allowing product developers that meet the requirements under [FDA’s] authorities to lawfully market these types of products.” To that end, on May 31, 2019, FDA held a public hearing to receive scientific data and information on products containing cannabis and cannabis-derived compounds. On July 25, 2019, FDA’s Principal Deputy Commissioner, Amy Abernethy, M.D., Ph.D., testified before the Senate Committee on Agriculture, Nutrition, and Forestry at its hearing on hemp production. Deputy Commissioner Abernethy testified that FDA is evaluating options to address regulation of CBD more quickly and efficiently than the estimated three to five years it can take FDA to complete an expedited notice and comment rulemaking process. Deputy Commissioner Abernethy also testified that FDA has formed a high-level CBD Policy Working Group to coordinate FDA’s “approach to CBD policy making, including considering the appropriateness of potential pathways for dietary supplements and/or conventional foods containing CBD to be lawfully marketed.”<sup>1</sup>

In May 2019, VDACS advised Registered Industrial Hemp Processors that, given both federal and state food safety-related laws, it was not able to approve the manufacture, distribution, or sale of (i) a food product or dietary supplement containing a hemp-derived extract, including CBD oil, or (ii) a hemp-derived extract intended for human consumption that is produced by a Registered Industrial Hemp Processor. In July 2019, out of concern for consumer safety and in response to concerns that Registered Industrial Hemp Processors presented to the Northham Administration following VDACS’s May 2019 advisement, the Administration directed VDACS to treat hemp-derived extracts intended for human consumption as approved food additives and to place qualifying Registered Industrial Hemp Processors under food safety inspection so that inspected and approved processors may manufacture a hemp-derived extract intended for human

---

<sup>1</sup> Statement of Amy Abernethy, MD, PHD, Principal Deputy Commissioner, Food and Drug Administration, Department of Health and Human Services before the Committee on Agriculture, Nutrition, and Forestry, United States Senate, “Hemp Production and the 2018 Farm Bill,” July 25, 2019. [https://www.agriculture.senate.gov/imo/media/doc/Testimony\\_Abernethy%2007.25.19.pdf](https://www.agriculture.senate.gov/imo/media/doc/Testimony_Abernethy%2007.25.19.pdf)



consumption. Shortly after receiving this policy directive, VDACS distributed to Registered Industrial Hemp Processors an outline for its implementation thereof, which requires processors to comply with either 21 C.F.R. Part 110 or Part 111 and to ensure their hemp-derived extracts intended for human consumption comply with specific standards for microbiologicals, mycotoxins, heavy metals, residual solvents, and pesticides.

## **STATE REGULATION OF CANNABIS-DERIVED PRODUCTS**

The FDA's establishment of a regulatory framework for the production of cannabis-derived products could take years if FDA must proceed without the enactment of a unique regulatory process under which it can address cannabis-derived products. In the absence of any federal standards for the production of cannabis-derived products, states have begun adopting their own standards. Many have production standards that include good manufacturing practices to ensure that the products are not produced under insanitary conditions. Some states have also established pesticide, heavy metal, microbiological, or residual solvent limits for hemp-derived products. As cannabis is known to absorb nutrients and chemicals from the media in which it is grown – it is a “bioaccumulator” – it is important to ensure that products derived from these plants do not contain harmful levels of these substances. Additionally, as solvents are often used to extract the CBD from the plant, it is also important to ensure that the amount of any residual solvent does not pose harm to the consumer.

Pursuant to the Virginia Drug Control Act (Va. Code § 54.1-3400 *et seq.*), the Virginia Board of Pharmacy (BOP) has adopted regulations for the production of cannabidiol oil<sup>2</sup> by permitted pharmaceutical processors. These regulations include standards prescribing the maximum levels of heavy metals (arsenic, cadmium, lead, and mercury) and mycotoxins (aflatoxin B1, aflatoxin B2, aflatoxin G1, aflatoxin G2, and ochratoxin A) as well as microbiologicals and residual solvents that may be present in cannabidiol oil.<sup>3</sup> Florida is adopting similar standards for hemp-derived extracts.<sup>4</sup> Massachusetts requires hemp-derived extracts to comply with the standards adopted in that state for medical marijuana products.<sup>5</sup>

## **RECOMMENDATIONS**

The Secretaries have determined that standards for hemp-derived oils intended for human consumption are appropriate and necessary. Recommendations for legislation or regulation to establish such standards are outlined below.

- Prescribe, via legislation, that a hemp-derived extract, such as an industrial hemp-derived CBD oil, is an approved food ingredient.

---

<sup>2</sup> Per Va. Code §§ 54.1-3408.3 and 54.1-3442.5, “cannabidiol oil,” as regulated by the Virginia Board of Pharmacy, means “any formulation of processed Cannabis plant extract that contains at least 15 percent cannabidiol but no more than five percent tetrahydrocannabinol, or a dilution of the resin of the Cannabis plant that contains at least five milligrams of cannabidiol per dose but not more than five percent tetrahydrocannabinol. “Cannabidiol oil” does not include industrial hemp, as defined in § 3.2-4112, that is grown, dealt, or processed in compliance with state or federal law.”

<sup>3</sup> See Appendix Two, Tables 1, 2, and 3.

<sup>4</sup> See Appendix Two, Tables 1, 2, and 3.

<sup>5</sup> See Appendix Two, Tables 1, 2, and 3.

- Prescribe, via legislation, that a manufacturer of a hemp product containing a hemp-derived extract is an approved source, for the purpose of compliance with Virginia’s food safety-related laws, if that entity complies with the food laws and regulations that pertain to the manufacturing of a hemp product containing an industrial hemp-derived extract in the state in which it is manufacturing this hemp product. Such food laws and regulations may include 21 C.F.R. Part 110, Current Good Manufacturing Practice in Manufacturing, Packing, or Holding Human Food or 21 C.F.R. Part 111, Current Good Manufacturing Practice in Manufacturing, Packaging, Labeling, or Holding Operations for Dietary Supplements. An entity manufacturing in compliance with relevant food laws and regulations will be qualified as an approved source from which (i) a retail food establishment could receive food to offer for retail sale or (ii) another food manufacturer could receive food for use in its food product.
  
- Prescribe, via legislation, that a hemp-derived extract intended for human consumption shall be produced from industrial hemp grown in compliance with federal or state law.
  
- Prescribe, via legislation, that a hemp-derived extract intended for human consumption shall have a THC concentration of no greater than 0.3 percent.
  
- Prescribe, via legislation, that a hemp-derived extract intended for human consumption may only be distributed and sold in the Commonwealth if the extract is the product of a batch tested by an independent testing laboratory and a certificate of analysis prepared by the independent testing laboratory is available upon request by VDACS or a consumer. An independent testing laboratory shall not have a direct or indirect interest in the entity whose product it is testing or any entity that grows, deals, or processes industrial hemp and shall be accredited by a third party accrediting body pursuant to ISO/IEC 17025 of the International Organization of Standardization.
  
- Direct, via legislation, that the Board of Agriculture and Consumer Services adopt standards for hemp-derived extracts intended for human consumption via an expedited regulatory process that is exempt from the requirements of the Administrative Process Act but that requires a public comment period.
  - It is the recommendation of the Secretaries that the standards currently prescribed by BOP to address potential contaminants or adulterants in cannabidiol oil are appropriate for hemp-derived extracts intended for human consumption.
  
  - It is the recommendation of the Secretaries that only residue from pesticides that meet the requirements outlined by VDACS for use on hemp intended for human consumption may be present in a hemp-derived extract intended for human consumption.
  
- Direct, via legislation, that the Board of Agriculture and Consumer Services (Board) adopt labeling standards for hemp-derived extracts intended for human consumption that address information such as the cannabinoid concentration and expiration date of the product as well as the method by which to obtain specific information regarding the product. The legislation should authorize the Board to adopt these standards via an expedited regulatory process that

is exempt from the requirements of the Administrative Process Act but that requires a public comment period.

- It is the recommendation of the Secretaries that the label for a hemp-derived extract intended for human consumption shall not state that the product is intended for the diagnosis, cure, mitigation, treatment, or prevention of a disease.

#### **ADDITIONAL CONSIDERATIONS**

Both topical products and inhalants that include hemp-derived extracts are also sold online and at retail locations; however, the primary focus of the Secretaries' work for this report was hemp-derived extracts intended to be orally ingested, as VDACS currently has authority to regulate the manufacture, distribution, or sale of food and dietary supplements in Virginia and routinely conducts inspections of these manufacturing facilities.

**In The Matter Of:**

*Public Meeting on the Report by the Secretaries of  
Agriculture and Forestry and Health and Human Resources*

---

*September 4, 2019*

---

*Commonwealth Court Reporters, Inc.*

*540-372-6655*

1 Public Meeting on the Report by the Secretaries of  
2 Agriculture and Forestry and Health and Human  
3 Resources Regarding the Appropriate Standard if Any  
4 for the Production of an Oil with a  
5 Tetrahydrocannabinol (THC) Concentration of No  
6 Greater Than 0.3 Percent That Is Derived from  
7 Industrial Hemp

8 Patrick Henry Building

9 1111 E. Broad Street

10 Richmond, Virginia

11 September 4, 2019

12  
13  
14 A public meeting by the Secretaries of  
15 Agriculture and Forestry and Health and Human  
16 Resources was held at the Patrick Henry Building,  
17 West Reading Room, 1111 E. Broad Street, Richmond,  
18 Virginia, on Wednesday, September 4, 2019, at 2:00  
19 p.m. before Colleen Good, Certified Court Reporter  
20 and Notary Public in and for the Commonwealth of  
21 Virginia.

1 MEMBERS PRESENT:

2

3 Jewel H. Bronaugh, PhD., Commissioner, Virginia  
4 Department of Agriculture and Consumer Services

5

6 Erin Williams, Senior Policy Analyst, Virginia  
7 Department of Agriculture and Consumer Services

8

9 David Brown, Director, Department of Health  
10 Professions

11

12 Caroline Juran, Executive Director, Virginia Board  
13 of Pharmacy

14

15

16

17

18

19

20

21

22

23

24

25

1 P-R-O-C-E-E-D-I-N-G-S

2 JEWEL BRONAUGH, Ph.D.: Good  
3 afternoon everyone, we are going to get started.  
4 Welcome to the public meeting on the report by the  
5 Secretary of Agriculture and Forestry and Health  
6 and Human Resources on production standards for  
7 industrial hemp derived oil.

8 My name is Jewel Bronaugh, I'm VDACS  
9 Commissioner and I will serve as the moderator for  
10 today. I'm happy to be joined by Dr. David Brown,  
11 Director of the Virginia Department of Health  
12 Professions.

13 I just welcome everyone here today.  
14 There are a lot of people who are here today  
15 because of your interest in this exciting, fast  
16 growing industry that we know as hemp.

17 It is clear to see that we are on the  
18 leading edge of an industry that many are watching  
19 very closely and have put a great amount of  
20 investment and hope in.

21 Many of us have watched this industry  
22 grow from just a few years of talking about the  
23 cultivation of hemp for fiber and grain to the  
24 extraction of hemp derived extracts for human  
25 consumption and other uses.

1 Today's meeting focus will be on the  
2 production standards for industrial hemp derived  
3 oil. As Chapters 653 and 654 of the 2019 Virginia  
4 General Assembly direct the Secretary of  
5 Agriculture and Forestry and the Secretary of  
6 Health and Human Resources to prepare a report on  
7 the standards, if any, for the production of an  
8 oil with a THC concentration of no greater than .3  
9 percent that is derived from industrial hemp.

10 The report is due to the General  
11 Assembly no later than November 1st, 2019. And  
12 this stakeholder meeting serves as a part of the  
13 process that the secretaries will use in order to  
14 complete that report that is due to the General  
15 Assembly.

16 So today there will be a presentation  
17 on the production standards for industrial hemp  
18 derived oil, followed by an opportunity for public  
19 comment. Today the areas for which we seek public  
20 comment include: Adulterants, labeling  
21 requirements, testing requirements, reciprocity  
22 for products manufactured under inspection in  
23 another state and any other areas that you feel  
24 have not been addressed.

25 Again, as Mr. Charles Green



1 indicated, we have a sign-in sheet to my left.  
2 Please be sure to sign in if you wish to speak  
3 today.

4 First we will have the Secretary of  
5 Agriculture and Forestry, Bettina Ring, who is  
6 represented by Deputy Secretary Brad Copenhaver  
7 speak after which the Secretary of Health and  
8 Human Resources, Dr. Daniel Carey, who is  
9 represented by Mr. Marvin Figaro, will both  
10 provide introductory comments and their remarks  
11 will be followed by the overview of Virginia's  
12 cannabis program that will be presented by Erin  
13 Williams at VDACS and Caroline Juran of the Board  
14 of Pharmacy.

15 So Deputy Secretary Copenhaver please  
16 come forward.

17 BRAD COPENHAVER: Thank you,  
18 Dr. Bronaugh. First of all, I just want to say  
19 thank you again for everyone being here today. As  
20 Jewel said, I'm Brad Copenhaver, Deputy Secretary  
21 of Ag and Forestry representing Secretary Bettina  
22 Ring.

23 We are very happy to be taking part  
24 in this process and leading this process as  
25 representatives of Virginia's Agricultural

1 industry, speaking for the farmers around the  
2 Commonwealth who see hemp as a very exciting new  
3 opportunity for them, we feel like, we agree, we  
4 think that hemp could provide a lot of opportunity  
5 for the Agricultural industry, but we've also been  
6 looking at this through VDACS public safety,  
7 public health lense as well.

8 So we are very excited. We've had a  
9 great discussion so far with our counterparts in  
10 Health and Human Resources and we look forward to  
11 hearing your comments today. Thanks.

12 MARVIN FIGUEROA: Good afternoon  
13 everyone. My name is Marvin Figueroa, Deputy  
14 Secretary of Health and Human Resources. I really  
15 wanted to wear a blazer today, but I wanted to  
16 make this meeting more fun, so I decided not to  
17 wear one.

18 Kind of want to echo the comments of  
19 Brad, that this has been a collaborative effort  
20 between the Board of Pharmacy and VDACS, what we  
21 want to do today is to make sure that you're open  
22 and honest and you provide us with feedback,  
23 because we will take this into consideration as we  
24 form the recommendations.

25 And so while this has been a

1 collaborative process, it hasn't been the easiest  
2 process as well. There has been a lot of serious  
3 conversation behind closed doors to arrive at a  
4 place that we feel is appropriate.

5           There is going to be some things that  
6 we still -- won't be able to iron out completely,  
7 but nonetheless we feel like we have undertaken  
8 this process with open honesty and showing that we  
9 are listening to one another. So on behalf of  
10 Daniel Carey, Dr. Daniel Carey, thank you for  
11 being here and we hope to have a good  
12 conversation. Thank you.

13           ERIN WILLIAMS: Good afternoon. I'm  
14 Erin Williams. I'm with the Department of  
15 Agriculture and Consumer Services. I'm in the  
16 office of Policy, Planning and Research there and  
17 I have been coordinating the agency's efforts and  
18 implement VDACS cannabis related programs,  
19 specifically Virginia's Industrial Hemp program  
20 for the past 5 years.

21           Caroline and I are going to go back  
22 and forth initially to provide you some background  
23 information, so I'll allow -- have her introduce  
24 herself.

25           CAROLINE JURAN: Good afternoon,

1 everyone. I'm Caroline Juran. I'm the executive  
2 director of the Virginia Board of Pharmacy and we  
3 are overseeing the pharmaceutical processor  
4 program which is a similar cannabis program,  
5 slightly different that you'll hear about in our  
6 presentation. I'm happy to be here. Thank you.

7 ERIN WILLIAMS: So the beginning of  
8 our meeting this afternoon, what we will do is  
9 give you an overview of our respective programs  
10 and then we'll move into the opportunity to  
11 receive the comments from the public on some  
12 specific areas of regulation that we're seeing  
13 happen in other states.

14 Before we get into the details of our  
15 programs, what Caroline and I will do is provide  
16 the general timeline of the progression of the  
17 development of our respective cannabis related  
18 program.

19 Throughout the afternoon I will  
20 likely use the terms hemp and industrial hemp  
21 interchangeably. So I don't mean to make any  
22 distinction between those two when I say hemp or  
23 industrial hemp, I mean cannabis with no greater  
24 than .3 percent THC.

25 And that is a definition that was

1 initially enacted in the 2014 Federal Farm Bill  
2 which allowed for industrial hemp to be grown for  
3 research purposes.

4 In 2015 the Virginia General Assembly  
5 responded to those hemp related provisions in the  
6 2014 Federal Farm Bill by enacting Virginia's  
7 Industrial Hemp Law, and that initial law created  
8 Virginia's first hemp research program that was  
9 overseen by the Department of Agriculture and  
10 Consumer Services, but their research was directly  
11 managed by public institutions of higher  
12 education.

13 The initial legislation in 2015  
14 created a grower license, so to grow hemp for  
15 research purposes, you were required to obtain a  
16 license from VDACS.

17 CAROLINE JURAN: So also in 2015 the  
18 General Assembly enacted a law that created a  
19 provision for a physician to issue something  
20 called a written certification to a patient to  
21 possess CBD or THCA Oil.

22 There had been an outcry of  
23 constituents who expressed a concern to their  
24 legislatures with respect to patients, their  
25 children, for instance, that they were having to

1 obtain CBD or THCA oil from out of state in order  
2 to treat their child's epilepsy.

3 So in 2015 the General Assembly  
4 created a provision that provided an affirmative  
5 defense for that patient, parent, guardian, to  
6 possess CBD or THCA oil when issued a written  
7 certification by a physician recommending the use  
8 of these oils.

9 Now in 2015 that's all they did.  
10 They just created the affirmative defense. They  
11 did not create a provision for actually producing  
12 the oils in Virginia, that didn't come about until  
13 2016.

14 That legislation had to be reenacted  
15 in 2017 and it did direct the Board of Pharmacy to  
16 issue up to 5 pharmaceutical processor permits  
17 here in Virginia and ask for a pharmacy to  
18 establish regulations for the health, safety and  
19 security of these processors.

20 Then in 2018 the General Assembly  
21 expanded this provision to allow a physician to  
22 issue a written certification for the treatment of  
23 any medical condition that the prescriber believed  
24 the patient could benefit from. So it went beyond  
25 epilepsy.

1 ERIN WILLIAMS: And during that same  
2 2018 General Assembly session, the Industrial Hemp  
3 Law was amended to create a second research  
4 program that was directly managed by the  
5 Department of Agriculture because there was  
6 interest in getting, or allowing more Virginians  
7 to grow hemp, and so this second research program  
8 was created to provide an opportunity to  
9 Virginians who weren't able to partner with  
10 Universities to conduct research under the VDACS  
11 hemp research program.

12 In 2018 the General Assembly also  
13 replaced the licensure, the grower license, with  
14 an industrial hemp grower registration and created  
15 a processor registration with the hope that that  
16 would get some hemp processing infrastructure  
17 established in Virginia.

18 In 2019 the Virginia Industrial Hemp  
19 Law was significantly amended to reflect the 2018  
20 Federal Farm Bill's hemp related provisions. The  
21 Federal Farm Bill allowed for hemp to be grown  
22 commercially.

23 So Virginia's general assembly  
24 responded by eliminating the research program that  
25 had previously been established and essentially

1 allowing for commercial production of hemp. It  
2 also clarified the permissibility of the  
3 possession of hemp derived CBD oil.

4 CAROLINE JURAN: And also in 2019 the  
5 General Assembly enacted the Drug Control Act to  
6 allow physician assistance as well as  
7 practitioners to issue written certifications to  
8 the patients for the treatment of their medical  
9 conditions or symptom control of their medical  
10 conditions.

11 Additionally it restricted each dose  
12 to 10 mg. of THC, that's tetrahydrocannabinoid,  
13 which is the psychoactive component of the  
14 cannabis plant.

15 Thirdly, it created an authority for  
16 the Board of Pharmacy to issue a new licensing  
17 category called a Registered Agent, which is an  
18 individual designated by a registered patient,  
19 parent or guardian to receive or obtain the CBD or  
20 THCA oil from the pharmaceutical processor and it  
21 mandated the Board of Pharmacy to promulgate  
22 emergency regulations allowing for the  
23 pharmaceutical processors to wholesale distribute  
24 their products between each other.

25 Currently the Board of Pharmacy is



1 working on these emergency regulations and the  
2 exempt regulatory actions.

3 ERIN WILLIAMS: The 2019 hemp related  
4 legislation included an enactment clause that  
5 Commissioner Bronaugh has already mentioned  
6 directing the Secretaries of Agriculture and  
7 Forestry and Health and Human Resources to deliver  
8 a report to the General Assembly regarding  
9 appropriate standards, if any, for the production  
10 of an oil with no greater than .3 percent THC that  
11 is derived from a hemp plant.

12 This enactment clause was the result  
13 of significant discussion that occurred during the  
14 General Assembly session regarding the quality of  
15 hemp derived products and consumer safety concerns  
16 surrounding those products.

17 So the enactment clause has given us  
18 the opportunity to convene here today to discuss  
19 what standards, if any, are appropriate for the  
20 production of these products.

21 What I'll do now is give you a little  
22 bit more detail about Industrial Hemp specifically  
23 and then more details about our current hemp  
24 related, as well as our current food safety  
25 related laws that VDACS administers.

1 Hemp has generally three different  
2 varieties. You can grow hemp for its fiber, for  
3 its grain or for its floral material. The picture  
4 on the left here is a picture of a fiber variety  
5 of hemp growing, whereas the picture on the right  
6 is one of a floral variety of hemp.

7 Since the 2014 Federal Farm Bill was  
8 enacted, there has been a significant shift in the  
9 hemp industries interest and what varieties of  
10 hemp that they choose to grow. When the  
11 conversation initially started the hemp industry  
12 was interested in growing fiber and grain  
13 varieties of hemp.

14 A few years ago the interest shifted  
15 towards going floral varieties of hemp because of  
16 the cannabinoids that are present in cannabis  
17 plants.

18 The cannabis plant produces hundreds  
19 of cannabinoids. The hemp industry specifically  
20 at this point was interested in cannabidiol which  
21 is commonly referred to as CBD.

22 The cannabinoids of the plant are  
23 produced in the flowers of the plant specifically  
24 in trichomes which are little glands within the  
25 flower. CBD is often used in a variety of health

1 and wellness products that you find currently on  
2 the market today.

3 So a little bit of detail about the  
4 2018 Farm Bill that I mentioned just a few minutes  
5 ago. This federal legislation was signed in  
6 December of 2018. It established a new definition  
7 for hemp and was very clear that hemp includes the  
8 extract and the cannabinoids of the plant.

9 The 2018 Farm Bill removed hemp from  
10 the definition of marijuana as it appears in the  
11 federal controlled substances list and it  
12 established a regulatory framework for the  
13 production of hemp in the U.S.

14 States that desire to have primary  
15 regulatory authority over hemp production in their  
16 state can submit a plan to the U.S. Department of  
17 Agriculture for approval. It's a regulatory plan  
18 that outlines how the state will regulate the  
19 production.

20 The U.S. Department of Agriculture  
21 also called on by the Farm Bill to establish a  
22 federal plan that farmers can operate under if  
23 they are in a state that does not have an approved  
24 plan.

25

1           So the signature, the president's  
2           signature on the Federal Farm Bill was again late  
3           December 2018. The timing of that was such that  
4           Virginia's General Assembly was able to respond in  
5           2019. Delegate Marshall and Senator Ruff had  
6           companion legislation that passed the 2019  
7           session.

8           Those bills had an emergency clause  
9           which meant that they went into effect the day the  
10          governor signed them, Governor Northam signed  
11          those pieces of legislation on March 21st.

12          The legislation eliminated Virginia's  
13          research, Hemp Research programs, essentially  
14          allowing for commercial production of the hemp  
15          here in Virginia as of March 21st.

16          The legislation retained the  
17          industrial hemp grower registration, retained the  
18          processor registration and it established a third  
19          registration category for industrial hemp dealers.  
20          The dealer is an entity that buys hemp crop from  
21          growers and sells it to processors.

22          The legislation provides that a hemp  
23          product is not marijuana under Virginia's Criminal  
24          Code, that hemp products, as long as that hemp  
25          product has no greater than .3 percent THC and is

1 otherwise lawful.

2 The legislation also provided some  
3 clarification regarding the permissibility of a  
4 hemp derived CBD oil. Specifically by amending  
5 the Drug Control Act to provide that industrial  
6 hemp is not cannabidiol oil as that term is  
7 defined in the Drug Control Act.

8 This is the legislation, too, that  
9 includes the enactment clause that directs the  
10 secretaries to produce a report on the standards  
11 for these products.

12 So again the governor signed the  
13 legislation in March, and as of August 30th VDACS  
14 has registered 1,002 industrial hemp growers, 2002  
15 industrial hemp processors, 66 industrial hemp  
16 dealers.

17 Based on the reports that we are  
18 receiving from the growers who have registered and  
19 are growing and have submitted their reports, so  
20 far this growing season we have about 2000 acres  
21 planted in hemp in Virginia.

22 So now I'm going to give you a little  
23 bit of background about the food safety laws that  
24 the Department of Agriculture administers, and  
25 then I'll go into, which will give you some

1 context for how we are currently overseeing the  
2 production of hemp derived oils in Virginia.

3 So for the purpose of understanding  
4 the food safety related law that VDACS  
5 administers, food is a substance that is intended  
6 for human consumption and is orally ingested, and  
7 the general premise is that any substance that is  
8 intentionally added to food must be an approved  
9 food additive and must come from an approved  
10 source.

11 And there is a specific path through  
12 which a food additive is approved and through  
13 which a source is approved.

14 The Federal Food, Drug and Cosmetics  
15 Act lays out how an additive is approved.  
16 Generally FDA can approve it, or can issue a  
17 generally recognized as safe notification for the  
18 additive.

19 So far FDA, the U.S. Food and Drug  
20 Administration has issued three grass  
21 notifications for hemp derived components. We've  
22 got a grass notification for hulled hemp seed, for  
23 hemp seed protein and for hemp seed oil.

24 To become an approved source, the  
25 manufacturer of that food additive needs to be

1 under inspection by a food safety regulator. So  
2 either VDACS here in Virginia or FDA, or the food  
3 program in the state in which the manufacturer is  
4 operating.

5 So let's look at some of the hemp  
6 derived products that are currently available to  
7 understand what components would be food additives  
8 that would need to be approved.

9 So the top row we have, ultimately we  
10 get to a food product that, or to which hemp  
11 derived oil is added.

12 So we'll start with the plant. We  
13 extract the cannabinoids from the plant. If that  
14 extract is intended for human consumption, that  
15 extract is a food additive that would need to be  
16 approved.

17 The abstract might then be put into  
18 an oil and if that oil containing the extract is  
19 intended for human consumption, that, too, is a  
20 food additive.

21 And then we get to the food products,  
22 which would need to be manufactured under  
23 inspection as well.

24 If we look at just an oil containing  
25 an extract, often this is a product that is

1 marketed or labeled as a tincture, will start with  
2 the plant, we extract the cannabinoids from the  
3 plant, again that would be if it's intended for  
4 human consumption, a food additive that needs to  
5 be approved.

6 The extract is then put into the oil  
7 which is then sold to the consumer. If that oil  
8 with the extract is intended for human  
9 consumption, again, that's a food.

10 So the Department of Agriculture and  
11 Consumer Services administers Virginia's Food and  
12 Drink Law and the regulations that are adopted by  
13 the Board of Agriculture and Consumer Services  
14 under that law.

15 The relevant regulation for our  
16 conversation today is the regulation pertaining to  
17 food for human consumption. This law, and this  
18 regulation very closely mirror the Federal Food  
19 Safety Law and the regulations adopted by the FDA  
20 under federal law.

21 As we know the FDA has only approved  
22 three hemp parts as food additives and they're  
23 currently evaluating the spectrum of cannabis  
24 derived products.

25 For that reason while we wait for FDA



1 to set forth its regulator path for cannabis  
2 derived products, we wait on potential Virginia  
3 legislation addressing hemp derived oils.

4 The Northam administration directed  
5 the Department of Agriculture to treat hemp  
6 extracts that are intended for human consumption  
7 as approved food additives and the Department of  
8 Agriculture was directed to place qualifying  
9 registered industrial hemp processors under food  
10 safety inspection if they were intending to  
11 manufacture a hemp derived extract intended for  
12 human consumption.

13 So the Department of Agriculture has  
14 established criteria for hemp processors who plan  
15 to produce a hemp derived extract intended for  
16 human consumption and they include some good  
17 manufacturing requirements.

18 The extract that they produce must be  
19 produced from hemp grown in compliance with  
20 federal or state law. The extract shall have no  
21 more than .3 percent THC, and the criteria also  
22 establishes some specific standards for  
23 adulterants including heavy metals, mycotoxins,  
24 microbiological residual solvents and pesticides.

25 This is the criteria against which

1 the food safety program is assessing an applicant  
2 board, the ability to manufacture a hemp derived  
3 extract for human consumption and the criteria  
4 against which those products would also be  
5 assessed.

6 Now Caroline is going to give you  
7 some additional details regarding the Board of  
8 Pharmacies Pharmaceutical processor permit  
9 program.

10 CAROLINE JURAN: Thank you, Erin. So  
11 with respect to the pharmaceutical processor  
12 program, as indicated earlier, the General  
13 Assembly provided for the Board of Pharmacy an  
14 authoritative to issue up to 5 permits, one per  
15 health service area as defined by the Board of  
16 Health.

17 It is a three phase competitive  
18 application process. We had 51 applicants  
19 originally, of course we had to widdle that down  
20 to 5 that we were going to issue conditional  
21 approval to.

22 We are in the second phase where we  
23 have issued conditional approval of these 5  
24 facilities are under construction and they are  
25 slated to be ready for inspection by December of

1 2019.

2 If they indicate compliance through  
3 that inspection process, they will be granted a  
4 pharmaceutical processor permit and then can begin  
5 operation.

6 As regarding fees they each paid a  
7 ten thousand dollar initial application fee. When  
8 they applied for their permit and indicate they're  
9 ready for the inspection there is a sixty thousand  
10 dollar fee, and then on an annual basis they will  
11 pay a ten thousand dollar annual renewal fee.

12 What we have here in Virginia is what  
13 we call a vertical operation model unlike other  
14 states who have licensed their growers separately  
15 from their processors, separate from their  
16 dispensers.

17 All of these activities will occur at  
18 the same site for each pharmaceutical processor,  
19 and each processor will operate under the  
20 supervision of a pharmacist in charge.

21 Again, the physician, physician  
22 assistant, nurse practitioner may issue the  
23 written certifications recommended in the use of  
24 the oils. Each of these individuals have to be  
25 registered by the Board of Pharmacy as do the

1 patients, parents, guardians in its new licensing  
2 category of registered agents.

3 The affirmative defense for  
4 possessing these oils is through the written  
5 certification as well as the board registration  
6 issued to the patients, parents and guardians.

7 The law defines these two terms,  
8 cannabidiol oil and tetrahydrocannabinol acid, or  
9 THCA oil. It indicates that there must be a  
10 minimum amount of cannabidiol oil or  
11 tetrahydrocannabinol acid concentration within  
12 each product.

13 And they contain no more than 5  
14 percent THC, they must be produced under current  
15 and good manufacturing practices for dietary  
16 supplements, we are anticipating various types of  
17 formulations to be produced.

18 These products each must be  
19 registered by the Board of Pharmacy before they  
20 may be dispensed, and as a result of that  
21 registration process they will be reported to the  
22 prescription monitoring program, so that a  
23 prescriber or a pharmacist queries a particular  
24 patient, they will see that they have been  
25 dispensed one of these two products in addition to

1 any other controlled substances dispensed to them.

2 Each product must be independently  
3 laboratory tested prior to dispensing, and the  
4 categories the Board of Pharmacy has established  
5 standards for include microbiological  
6 contaminants, mycotoxins, heavy metals, residual  
7 solvents and pesticide chemical residue.

8 They must also perform an ingredient  
9 profile and a terpene profile for each of the  
10 products. An expiration date shall be established  
11 for each product, that is based up a validated  
12 stability testing process.

13 And then there are certain labeling  
14 requirements, both for the batch label of the  
15 product as well as for a patient's specific  
16 labeling.

17 Those types of requirements are very  
18 similar to for instance a product that would be  
19 dispensed by a pharmacy. They would include, for  
20 instance, a serial number, the name of the  
21 patient, the name of the product, the strain, any  
22 directions for use, the name of the pharmacist or  
23 initials of the pharmacist who dispensed it,  
24 contact information for the pharmaceutical  
25 processor, any cautionary statements regarding the

1 use of those products, the expiration date and any  
2 recommended storage conditions for those  
3 particular products.

4 That is all I have. I will turn it  
5 back over to the Commissioner.

6 JEWEL BRONAUGH, Ph.D.: So thank you,  
7 Erin, and thank you Caroline for kind of a  
8 background on the progression of the Industrial  
9 Hemp Program in Virginia, the Pharmaceutical  
10 Processor Program.

11 We're going to move to the public  
12 comment section of today's presentation. If you  
13 wish to speak today and you have not had an  
14 opportunity to do so, we do have a sign-in sheet  
15 if you wish to speak.

16 I would like to just provide a little  
17 bit of guidance and direction on how we're going  
18 to move forward. So again, the purpose of this  
19 comment period is to discuss hemp derived oil  
20 production standards.

21 So the focus on that is to provide  
22 the public comment so that we can have feedback  
23 that Secretary Ring and Secretary Carey will  
24 include in their final report due November 1st.  
25 So please focus your comments under that area and

1 on the topics in which Erin is going to highlight.

2 Due to the limited amount of time  
3 that we have, we will not take questions today.  
4 So this is an opportunity for you to provide  
5 public comment and feedback only.

6 And I ask that everyone please limit  
7 your comments to between 2 to 3 minutes or less,  
8 and I assume that everyone knows this, but I ask  
9 that everyone just be respectful of each other  
10 during this time, and so Mr. Charles Green has  
11 handed me the public comment sign-in sheet, and is  
12 there anyone else who wishes to sign? Okay, sir,  
13 I'll put it right here so you can come and sign  
14 it. Thank you.

15 So at this point I'm going to turn it  
16 back over to Erin and she's going to highlight the  
17 areas of discussion and we call each one  
18 individually in the order that you have signed up  
19 in order to comment on that specific area that  
20 Erin highlights. Thanks.

21 ERIN WILLIAMS: In the absence  
22 currently of Federal FDA action regarding cannabis  
23 derived products, specifically a hemp derived oil,  
24 what we have seen nationally is states adopting  
25 their own regulations regarding production

1 standards for hemp derived extracts or hemp  
2 derived oils, so in preparation for today's  
3 meeting, we took a look at what other states are  
4 doing, specifically their standards regarding  
5 adulterants or what they would deem to be  
6 adulterants of these products, substances that  
7 would make a product not fit for human  
8 consumption.

9 So we had looked at what Florida is  
10 proposing to do, how Massachusetts is operating,  
11 and we looked at Oregon and Colorado, and they did  
12 have various standards for specific adulterants.

13 We looked at regulations proposed in  
14 North Carolina that at this time do no, or at  
15 least the regulations as proposed that they have  
16 published do not include specific adulterants, nor  
17 does Kentucky have any specific list of substances  
18 it would deem to be adulterants for a hemp derived  
19 product.

20 But what we saw generally were  
21 efforts to regulate micro toxins, we would see  
22 specific, some specific iteration that would  
23 include aflatoxin B1, aflatoxin B2, aflatoxin G1  
24 and G2 and ochratoxin A.

25 Some states also prescribe standards



1 regarding heavy metals, among the heavy metals  
2 that we saw regulated were arsenic, cadmium, lead  
3 and mercury.

4 Some states also provided specific  
5 standards regarding maximum levels of  
6 microbiologicals that could be found in these  
7 products to include E.coli, listeria, salmonella.

8 Some states had requirements for  
9 maximum total yeast and mold numbers. Some states  
10 have also established pesticide limits for these  
11 products.

12 At this point we will -- I would like  
13 to hear the public's comments as to the regulation  
14 of or the standards for adulterants and hemp  
15 derived oils.

16 JEWEL BRONAUGH, Ph.D.: Dylan Bishop,  
17 did you have a comment you wish to make on  
18 adulterants of concern? And please feel free to  
19 stand where you are.

20 DYLAN BISHOP: Good afternoon,  
21 distinguished panel. My name is Dylan Bishop, I  
22 represent the Cannabis Business Association of  
23 Virginia. Since that's a mouthful, I'll just  
24 refer to it shorthand as Cannabis VA.

25 We represent growers large and small,

1 processors, dealers and also ancillary businesses  
2 like laboratory testing outfits, so on and so  
3 forth.

4 So we polled our members and I  
5 particularly talked to our members that run  
6 laboratory testing outfits since they are subject  
7 matter experts, and in particular they wanted to  
8 address the pesticide testing.

9 The pesticide testing requirements  
10 that are both in the pharmaceutical processor  
11 regulations and the guidance given by VDACS on  
12 hemp derived oils for human consumption, it's  
13 pretty big. It doesn't provide a specific list.  
14 It says if you need to test for pesticides then do  
15 this but not do that, but are labeled as such.

16 Other states such as Maryland just  
17 gave their testing requirements for medical  
18 cannabis, I think it was June 14th of this year,  
19 but they just specifically listed the pesticides.  
20 There were, you know, of concern to the State and  
21 our testers constantly are saying we don't know  
22 which pesticides to test for with the guidance  
23 given to us particularly in the VDACS guidance for  
24 hemp derived oils for human consumption is pretty  
25 convoluted at best.

1           So if we could get just a specific  
2 list of pesticides with the active ingredients in  
3 those pesticides it would really be to the benefit  
4 of our laboratory testing outfits who cater to  
5 these markets in the Commonwealth.

6           Also with regard to microbiological  
7 standards, both in the Virginia pharmaceutical  
8 regulations and also the Virginia Industrial Hemp  
9 Program, the guidance given out by VDACS for hemp  
10 derived oils for human consumption list by  
11 reference section 1111 of the U.S. Pharmacopeia.

12           Our laboratory technicians and  
13 scientists think that those standards are unduly  
14 low or restrictive. For example, the U.S.  
15 Pharmacopeia calls for total aerobic microbial  
16 counts for non (inaudible) preparations be less  
17 than a thousand Colony Forming Units or CFUs.

18           We would think that that is a little  
19 restrictive, might be unduly burdensome and really  
20 goes a little bit too far if we're only concerned  
21 about a normal patient population that doesn't  
22 have a severely incapacitated immune system with  
23 something like HIV or AIDS.

24           What we would suggest is follow  
25 guidelines similar to the Maryland Medical

1 Cannabis Commission's Technical Authority for  
2 medical cannabis testing that would include  
3 standards that are, that would require a hundred  
4 thousand CFU program or less of total aerobic  
5 microbial count, ten thousand CFU program or less  
6 of total combined yeast and molds, one hundred or  
7 less CFU per gram of E.coli, and salmonella  
8 testing standard of non detected purgy (phen) for  
9 none found in the testing sample.

10 JEWEL BRONAUGH, Ph.D.: Okay. Thank  
11 you, Mr. Bishop. Mr. Sam Johnston, do you wish to  
12 comment on adulterants of concern?

13 SAM JOHNSTON: Thank you, no comment  
14 on this topic.

15 JEWEL BRONAUGH, Ph.D.: All right.  
16 Tom Piccariello.

17 TOM PICCARIELLO: I have no comment.

18 JEWEL BRONAUGH, Ph.D.: Okay, thank  
19 you. And Seth Richardson.

20 SETH RICHARDSON: Hello. Let's go  
21 down the list. Let's start with heavy metals. I  
22 represent Kingsland Partners, we are registered  
23 growers and processors in the state of Virginia.

24 We have recently had product tested  
25 as a CBD extract under California standards and

1 passed with flying colors. It's not difficult.

2 The arguments for lower microbial --  
3 or higher microbial limits I feel are not valid.  
4 It just opens up the potential range of problems  
5 that could be encountered.

6 And so many people who are growers in  
7 this industry are learning, and I do not believe  
8 it is necessary to lower the standards for  
9 everybody to learn at this point in time. And  
10 every soil in Virginia is not suitable to grow  
11 industrial hemp on.

12 So under the California standards  
13 using best management practices, that's what I  
14 would encourage Virginia to follow. I know I'm  
15 not a popular person in this room at this time  
16 saying these things, but they aren't hard to  
17 achieve if you're paying attention to your  
18 protocols and procedures, your extraction  
19 procedures.

20 We even had an example where in one  
21 of the extracts we produced we showed minor traces  
22 of lead. In talking with Evolabs in California,  
23 they had noted that blue cobalt bottles from China  
24 had traces of lead.

25 So we made sure when we sent one of

1 the samples in, we sent it in for a bottle that  
2 was blue cobalt, and we showed .2269 milligrams or  
3 micrograms of lead, but we're a 10th of the legal  
4 limit in California, but the source was from 30  
5 days in this blue cobalt bottle.

6 So really it takes paying a lot of  
7 attention to your growing, your extraction, but  
8 also to the materials you're packaging your  
9 product in.

10 As far as pesticides I think a good  
11 standard would be any pesticide that is not OMRI,  
12 O-M-R-I, listed should be tested for because that  
13 would be prices that are suitable for food product  
14 consumption.

15 But again, the California models to  
16 me probably are a very good place to start as far  
17 as determining what guidelines Virginia needs to  
18 follow and they're not difficult.

19 Everybody, says oh, California, we  
20 can't meet those standards, I think it's very  
21 possible.

22 JEWEL BRONAUGH, Ph.D.: Thank you  
23 Mr. Richardson. Is there anyone else who wishes  
24 to speak, who did not sign up but wishes to speak  
25 on this specific area?

1 ERIN WILLIAMS: So another common  
2 area that we saw hemp products or specifically  
3 hemp oils being regulated in other states pertains  
4 to the labeling that appears on the packaging.

5 So we have one category of labeling  
6 requirements that is derived from current federal  
7 regulations that would include, and would be  
8 required of all packaged food, include product  
9 name, the net weight, an ingredient statement and  
10 the name and address of the manufacturer,  
11 distributor or packer of that product.

12 Then we also saw labeling  
13 requirements that were specific to hemp products  
14 that would include the number of milligrams of  
15 certain cannabinoids per serving in that product,  
16 a statement as to the THC concentration of the  
17 product, some requirements pertain to an  
18 expiration date for the product, prohibitions  
19 against specific statement on that label regarding  
20 that product.

21 And then there was often some  
22 requirements regarding the label including a batch  
23 number and information for or a method by which a  
24 consumer could obtain information regarding that  
25 batch.

1           JEWEL BRONAUGH, Ph.D.: All right,  
2           returning to my list. Mr. Bishop, do you wish to  
3           make a comment about labeling requirements?

4           DYLAN BISHOP: Again, Dylan Bishop of  
5           behave of Cannabis VA, the association would like  
6           to see labeling requirements, certain cannabidiols  
7           we would like to see required, would be the total  
8           THC and the total CBD, this would not include the  
9           THCA or CBDA.

10           I think that falls in line with how  
11           VDACS does its testing out in the field. It's  
12           post decarboxylation which takes, from my  
13           elementary understanding of chemistry, its takes  
14           that THCA and THC and it all transforms into a  
15           total THC count.

16           So if that's the way the Commonwealth  
17           is going to do its testing, I think that our  
18           private sector companions ought to do it as well  
19           just to keep things uniform.

20           Cannabis VA would also like to see  
21           dosages listed on the labeling requirements. This  
22           would include the serving of dosage size and then  
23           a maximum daily serving or dosage.

24           Again, we would like to see the  
25           ingredients and then also stability information.



1 That would include manufacturing date, the best  
2 buy date or shelf life and then also an expiration  
3 date for a use within X number of days of opening.  
4 This would maintain the consumer safety and  
5 without being overly burdensome to our processors  
6 and manufacturers. Thank you.

7 JEWEL BRONAUGH, Ph.D.: Thank you,  
8 Mr. Bishop. Mr. Johnston?

9 SAM JOHNSTON: Thank you. My name is  
10 Sam Johnston, representing the Virginia Industrial  
11 Hemp Coalition. I'll just say that, and this  
12 might apply to some of the other matters that are  
13 coming up, with respect to the FDA process  
14 underway now. I believe that labeling is one of  
15 the matters that they're going to be opining on in  
16 their ruling.

17 And so I could encourage  
18 recommendations to the General Assembly to  
19 basically narrow the -- we anticipate that those  
20 labeling provisions will be appropriate.

21 We would hope that the  
22 recommendations will not go beyond that, but I  
23 will also say given that November 1 is the  
24 deadline for the Secretaries to present and maybe  
25 you know, but I don't know when, and we anticipate

1 that the FDA is expected to do interim rule making  
2 given that the final rule making is probably going  
3 to take quite some time.

4 So in the event that that interim  
5 rule making occurs after November 1st, it may well  
6 be that you're going to have to revise some of  
7 what you say to the General Assembly, having  
8 reviewed that ruling.

9 So I just would expect that that  
10 would be the case and we will be notified, but I  
11 hope that we will strongly sort of be directed to  
12 a certain extent by what the FDA says and not be  
13 more restrictive than that. Thank you.

14 JEWEL BRONAUGH, Ph.D.: Thank you,  
15 Mr. Johnston. Mr. Piccariello.

16 SETH RICHARDSON: Tom Piccariello.  
17 I'm with ChyloCure a hemp processing facility in  
18 Blacksburg, Virginia. I'm here with Jim Politis,  
19 he's my partner, I think you all know him.

20 I just have two comments. One is on  
21 the prohibition against any product that is  
22 intended for the diagnosis, cure, medication,  
23 treatment or prevention of a disease, that is a  
24 statement that says what you can't do. There  
25 might be, your policies should state some of the

1 things that you can do.

2 And you can find some guidance of  
3 this if you go to DSHEA, Dietary Supplement Health  
4 and Education Act, they will provide -- they have  
5 a language in there that directs one how, what one  
6 can say about the, about what it can do. So that  
7 was just one thing, I wanted to make a point about  
8 that.

9 The other point is I think -- if I  
10 understand Mr. Bishop correctly, he said that the  
11 label should contain a sum of THC and THC -- THCA  
12 and THC, excuse me.

13 And if that's true, I think that will  
14 probably make a lot of people's product hot. The  
15 sum of THCA and THC is going to be above .3  
16 percent, I think on almost every vine because I  
17 think right now, what I'm understanding right now,  
18 the farmers are having trouble trying to meet that  
19 .3 percent THC level without going above a CBD  
20 content of 7 percent.

21 They go above -- if they go up to  
22 like 10 or 12 percent with the maximum, the plant  
23 to produce, if they try to push it to that level  
24 the THC level goes up above .3, so now they're  
25 product is hot.

1           So there is an issue there and maybe  
2 later on I'd like to, in the general comment  
3 section, I'd like to make a comment about that THC  
4 percentage.

5           I'm not sure this is the right forum  
6 to do that, but if I say this wrong, or it's the  
7 wrong time to say it, just tell me to sit down and  
8 go over it another time, but at the end I'd like  
9 to talk about that.

10           JEWEL BRONAUGH, Ph.D.: Thank you,  
11 Mr. Piccariello. Mr. Richardson.

12           SETH RICHARDSON: I love getting to  
13 go last. The number of milligrams in certain  
14 cannabinoids per serving, in the work we have done  
15 in looking at many different cannabinoids and  
16 their different effects, the difference between  
17 the affect of CBDA versus CBD, the difference  
18 between effective THC versus THCA, they are  
19 drastically different, and for the consumer who is  
20 consuming that product it would be important to  
21 have a threshold of testing whether it is at .01  
22 milligrams or .001 milligrams, either per serving  
23 or per ml. on the bottle.

24           And this is just the beginning of the  
25 hemp industry as we look at the number of

1 different compounds that potentially have  
2 beneficial effects, it will be important for the  
3 consumer to have some form of understanding of  
4 that.

5 And the argument of products testing  
6 hot, as a general rule in the formulation of these  
7 products for public sale, you're looking at a  
8 dilution of the original stock material that  
9 should test at .3 percent.

10 It is concentrated in the extraction  
11 process, but as a general rule it is then diluted  
12 again into a carrier before it is dispensed.

13 And so the .3 concentration level  
14 poses to me no problem. Combined THC and THCA  
15 should be no problem at the .3 percent if you're  
16 paying attention to your formulation, and you  
17 would have to be using material that is testing  
18 above 1 percent that once you dilute it --  
19 commonly when the CO2 extraction is done, we're  
20 looking at 3 to 4 percent total THC and that CO2  
21 extracted material is then diluted in the carrier  
22 down to a level where it is below, well, well,  
23 below the .3 percent.

24 And when we're looking at -- that's  
25 just a good summation there. All the rest I

1 strongly agree with and love getting to go last.

2 JEWEL BRONAUGH, Ph.D.: Thank you,  
3 sir. We're going to testing requirements. Is  
4 there anyone else who did not get a chance to  
5 speak who wishes to speak on labeling  
6 requirements?

7 ERIN WILLIAMS: We looked at some of  
8 the testing that is required or proposed to be  
9 required in these other states that have begun to  
10 regulate the products.

11 Testing requirements, we found batch  
12 testing requirements, we found requirements  
13 regarding expectations of the laboratories,  
14 independent laboratories that are doing testing  
15 for the industry.

16 We found requirements regarding the  
17 information that the manufacturer must make  
18 available to both the regulator and to the  
19 consumer, whether that be providing a certificate  
20 of analysis from the test, the test lab, or  
21 another method of conveying information regarding  
22 the product and the testing that was done on the  
23 product.

24 JEWEL BRONAUGH, Ph.D.: Mr. Bishop,  
25 do you have any comments pertaining to testing

1 requirements?

2 DYLAN BISHOP: Yes. Again Dylan  
3 Bishop on behalf of Cannabis VA. We would like to  
4 see testing requirements both of the active  
5 ingredient and then the final product of course by  
6 batch.

7 Again, and I'll reiterate, we would  
8 also like to mandate stability testing at 6 months  
9 and one year intervals and that would include  
10 stability testing of the cannabinoid content,  
11 microbiological impurities and then water  
12 activity. Thank you, ma'am.

13 JEWEL BRONAUGH, Ph.D.: Thank you.  
14 Mr. Johnston?

15 SAM JOHNSTON: No comment right now.  
16 Thanks.

17 JEWEL BRONAUGH, Ph.D.: All right.  
18 Mr. Piccariello.

19 TOM PICCARIELLO: I have no comment.

20 JEWEL BRONAUGH, Ph.D.: Okay.  
21 Mr. Richardson.

22 SETH RICHARDSON: So when we talk  
23 about batch testing, which level of the product  
24 are we looking at batch testing?

25 ERIN WILLIAMS: It ranged, depending

1 on the state whether -- it varied, and that's a  
2 topic of discussion, too.

3 SETH RICHARDSON: Whether it's a  
4 batch from a grower or a batch from a processor or  
5 the batch at the level of the final product, which  
6 is where your batch number comes into effect.  
7 Batch testing at the grower level I feel is  
8 relatively unnecessary, batch testing at the level  
9 of the processor is basically your own liability  
10 policy which if you are a good processor you  
11 should be doing that anyway.

12 As a, for general public safety it is  
13 highly important that that certificate analysis be  
14 available at a minimum to the regulators on  
15 request.

16 For the consumer, the consumers  
17 ability to read that testing and understand the  
18 parameters of it, really not necessary. It is a  
19 difficult hurdle for a consumer to really  
20 understand the level at which products have been  
21 tested, whether it's to .01 milligrams THC and did  
22 not show up and then the consumer so low well here  
23 is a THC free product, which is only to that  
24 level.

25 So it's a big question, it is up to



1       how to approach it especially for the consumer  
2       level.

3                       Labeling in terms of THC free is a  
4       big question because if you are somebody who has a  
5       form of employment where drug testing is part of  
6       your job, you want some reliability in terms of  
7       the product that you are consuming, so.

8                       JEWEL BRONAUGH, Ph.D.: Thank you.  
9       Yes.

10                      DYLAN BISHOP: Ms. Commissioner, I'd  
11       like to offer a point of clarification. When I  
12       said, when we were talking about the testing  
13       requirements, it's the view of our association  
14       that both THC and THCA, CBD and CBDA would all be  
15       tested. It was only within the labeling  
16       requirements, what the consumer would see, is in  
17       the association's opinion that just hulled THC and  
18       hulled CBD be listed, not necessarily every other  
19       THCA, CBDA, and it would be the association's  
20       assertion that for minimal standards as to what is  
21       legal or marketable or not, that would be that  
22       delta 9 THC not hulled THC, so a little  
23       distinction between the consumer facing labeling  
24       and then what is required of these agencies that  
25       would be administering and enforcing these.

1                   JEWEL BRONAUGH, Ph.D.: Thank you,  
2 Mr. Bishop, for that clarification. Is there  
3 anyone else who wishes to speak? Yes.

4                   SETH RICHARDSON: May I make a point?

5                   JEWEL BRONAUGH, Ph.D.: Yes.

6                   SETH RICHARDSON: The difference  
7 between CBDA and CBD is drastic. An extract  
8 containing primarily CBDA will keep you awake  
9 during the day, whereas CBD will put you to sleep,  
10 a very important point for a consumer not readily  
11 understood on the market the differentiation  
12 between the two.

13                   Tom works with CBDA products that are  
14 for pain, but if you're taking a product for pain  
15 during the day, that's one thing, if you're taking  
16 a product for pain in the evening, which now we're  
17 talking about what can we describe its uses as,  
18 it's a big difference.

19                   And people need to begin to  
20 understand these differences between the different  
21 acid and non acid forms of the cannabinoids. The  
22 difference between THCA and THC, THC is  
23 psychoactive, THCA affects those same channels as  
24 NSAIDS, aspirin, Tylenol, and has that affect, and  
25 is non psychoactive, big difference in terms of

1 what you are consuming.

2 But this is the leading edge of the  
3 industry having everybody understand the nuances,  
4 the differences, does a product have CBN in it,  
5 does it have Delta 8 in it, and much less does a  
6 product contain a wide spectrum of all these  
7 cannabinoids or just a very highly concentrated  
8 form of one of the cannabinoids.

9 Again, the effects, the uses, are  
10 going to become very important as we understand  
11 more about all these compounds, much less the  
12 interaction of terpenes with them and all kinds of  
13 other things we just haven't named yet, so.

14 JEWEL BRONAUGH, Ph.D.: Thank you,  
15 Mr. Richardson. Is there anyone else who wishes  
16 to speak on the testing requirements?

17 TOM PICCARIELLO: I would just like  
18 to follow up to make sure we understand -- again  
19 Tom Piccariello, ChyloCure. When we're talking  
20 about THC and THCA, it's really talking about the  
21 sum because THCA readily converts to THC.

22 So if you have a product on the shelf  
23 and it contains some THCA and contains some THC,  
24 as it sits on the shelf that THCA is (inaudible)  
25 so that's something that people should be aware of

1 in terms of the THCA content and the THC content.

2 I think it's important to understand  
3 that the sum is also something that should be  
4 considered and the THC level itself is not  
5 necessarily a measure of potential psychoactivity,  
6 it's actually the sum of two.

7 JEWEL BRONAUGH, Ph.D.: Thank you.  
8 Anyone else? Okay, and we will move forward to  
9 reciprocity for products manufactured under  
10 inspection in another state.

11 ERIN WILLIAMS: With regards to  
12 reciprocity between states for products  
13 manufactured in another state, what we see is a  
14 general sense among food safety regulators that  
15 their peers in the other state have inspected the  
16 facility under the food safety regulations of that  
17 state, the facility at which these products are  
18 being produced. So they're looking for that  
19 inspection to then be able to deem a manufacturer  
20 as an approved source.

21 JEWEL BRONAUGH, Ph.D.: Mr. Bishop?

22 DYLAN BISHOP: Yes, ma'am, Dylan  
23 Bishop on behalf of Cannabis VA. I apologize for  
24 being redundant, but you guys like to have that  
25 for the record.

1 Cannabix Business Association of  
2 Virginia would like to see reciprocity agreements  
3 require the products sold in Virginia to meet or  
4 exceed Virginia standards.

5 We know that this is a vulnerable  
6 industry, public perception is at best still  
7 undecided, we would like to ensure consumer safety  
8 and also protect the viability of Virginia based  
9 growers and processors. Thank you.

10 JEWEL BRONAUGH, Ph.D.: Thank you.  
11 Mr. Johnston.

12 SAM JOHNSTON: I would tend to agree  
13 with that, with Mr. Bishop. Thank you.

14 JEWEL BRONAUGH, Ph.D.:  
15 Mr. Piccariello?

16 TOM PICCARIELLO: I have no comment.

17 JEWEL BRONAUGH, Ph.D.: All right.  
18 Mr. Richardson?

19 SETH RICHARDSON: No comment.

20 JEWEL BRONAUGH, Ph.D.: All right.  
21 The last area, if there are any other areas that  
22 you feel have not been addressed in anything that  
23 we discussed today, I will start with the list and  
24 ask for your feedback and we will open it up to  
25 any others who wish to speak.

1           Mr. Bishop, is there anything else  
2 you wish to add?

3           DYLAN BISHOP: I do not believe so,  
4 if you wouldn't mind just coming back to me. I  
5 may have something later on.

6           JEWEL BRONAUGH, Ph.D.: Okay.  
7 Mr. Johnston?

8           SAM JOHNSTON: Thank you. So this is  
9 an issue that is a little bit outside the scope of  
10 what you do, but you might be able to help with  
11 it.

12           As an attorney in Virginia I have  
13 been made aware of some circumstances in which  
14 there has been a lack of knowledge or some  
15 confusion on the part of law enforcement, and the  
16 problem of course that I am speaking to is the  
17 lack of a field test where law enforcement can  
18 test a hemp shipment to see whether its hemp or  
19 marijuana.

20           In other words they can test to see  
21 if the product has the presence of THC, but they  
22 can't test to see if it exceeds the threshold of  
23 0.3 percent.

24           Now I know that the Department of  
25 Forensic Sciences is working on this issue now,

1 and I know that, you know, law enforcement and the  
2 attorney general have been talking about it, but I  
3 just wanted to make you aware that this is a  
4 problem that does need a solution.

5 And I don't know, I've heard from one  
6 source at DFS that there may be forthcoming a test  
7 that would test for the CBD to THC ratio or the  
8 THC to CBD ratio.

9 So for example if they test a hemp  
10 shipment and it comes out higher CBD than THC,  
11 well, that's not definitive, it doesn't tell you  
12 0.3 percent or not but it does tell law  
13 enforcement something. It tells them that this is  
14 probably a legitimate hemp shipment if it's the  
15 ratio.

16 So that would, that could be  
17 something that you could encourage in whatever  
18 discussions you have with law enforcement because  
19 as of now they are -- and by the way,  
20 congratulations on hitting a thousand hemp growers  
21 in the state -- but that means there is going to  
22 be a lot shipments being trucked around, and there  
23 is going to be a lot terpenes in the air so to  
24 speak.

25 And you know, law enforcement, you

1 know we want to support law enforcement, we want  
2 them to be able to be comfortable and, you know,  
3 and have a good working knowledge of the law and  
4 be able to enforce them. Because I know that  
5 there have been instances in which for example  
6 through a bizarre set of circumstances the parents  
7 had, might be threatened with an officer for  
8 endangering, for child endangerment for providing  
9 a CBD vape to her child, who then got caught with  
10 it in school.

11 Things like that are happening, okay.  
12 It's a problem that, you know, so to whatever  
13 extent you can help law enforcement, help the  
14 Department of Forensic Sciences advance a test  
15 that law enforcement can use in the field, and I  
16 know the USDA is working on this, too.

17 JEWEL BRONAUGH, Ph.D.: Thank you,  
18 Mr. Johnston. Mr. Piccariello.

19 TOM PICCARIELLO: Yes, it was alluded  
20 to earlier about the THC content in hemp. I'm  
21 particularly concerned about the grower, I know  
22 this is not a forum that deals with growers, so  
23 this is going to be outside of the purview of what  
24 we're talking about, but I think it's an important  
25 thing to address at mini meetings, and that is



1       there is going to be some issues with farmers  
2       being able to comply with .3 percent rule.

3               I think there is going to be a lot  
4       farmers who are going to be very disappointed in  
5       what is going to happen to their product.

6               The .3 rule from what I understand is  
7       from a study that was done quite a few years ago,  
8       which I looked at the study and it's not a  
9       statically validatable.

10              So the .3 percent rule is not really  
11       based on sound science in my opinion. I think  
12       that .3 percent rule can be based on sound science  
13       and statistically validatable data.

14              It's not going to happen this year, I  
15       understand that, but I want the VDACS and the  
16       Board of Pharmacy to be aware that I think that we  
17       should be thinking about this, and we should be  
18       prepared for certain things that are going to be  
19       very disappointing to the farmers and maybe some  
20       of the processors, I don't know about that,  
21       Mr. Richardson thinks the processing is okay, I  
22       tend -- I don't disagree with that, but I think  
23       the farmers could be, are going to be seriously  
24       concerned about that .3 percent rule.

25              I'll be more than happy to talk to

1 you about how I would approach this problem at  
2 another time.

3 JEWEL BRONAUGH, Ph.D.: Thank you.

4 TOM PICCARIELLO: You're welcome.

5 JEWEL BRONAUGH, Ph.D.:

6 Mr. Richardson.

7 SETH RICHARDSON: All kinds of open  
8 fields here. And all this centers around the .3  
9 percent, being able to test it readily in the  
10 field as necessary, which at this time is very  
11 difficult.

12 I have worked with scientists on  
13 atmospheric solids analysis probes where we were  
14 actually measuring ratios of CBD to THC, but it's  
15 not a field ready test and the ratio is not  
16 infallible.

17 As Erin and Kevin and I sat down last  
18 year in our office and went through it and trying  
19 to validate it and I was on the losing end of that  
20 one.

21 So a ratio is probably not the best  
22 test, the current test now is a presumptive test  
23 and presumptive means you rely on one side or the  
24 other and that further testing is necessary to  
25 find the true answer as to what is going on.

1           As a grower with the .3 percent we  
2           have been rigorously testing our material in the  
3           field and to date we are still under, well under  
4           the .3 percent. Most of the product runs at .2 or  
5           lower at this point.

6           When we had a very hot week last week  
7           nothing moved when we retested. So we can look at  
8           environmental conditions and what we do know is  
9           that as temperatures cool in the fall, the longer  
10          you wait, the greater potential for your THC,  
11          total THC levels to rise. And actually it's THCA  
12          in the whole testing realm.

13          And there are lot of growers who  
14          would like to wait later because their CBD levels,  
15          CBDA levels will rise in their plants but at the  
16          same time there is the risk of THCA levels rising.

17          Currently in Virginia we're looking  
18          at what I would consider ideal growing conditions  
19          for CBDA and that is hot and dry, and the longer  
20          it stays that way, the longer it's in our favor.

21          And we know from testing of growers  
22          last year when we had exceedingly wet conditions  
23          we had a lot of growers, even on fiber crops,  
24          fiber and seed crops under wet conditions tested  
25          triple the level of what they thought they were

1 going to be at.

2           So much of it is weather related. NC  
3 State did a set of tests where they looked at  
4 levels of nitrogen as far as effecting THCA  
5 production, found no influence, so it's not  
6 fertilizer. It's going to be hot and dry versus  
7 wet and cold.

8           So just like a grape crop or a wine  
9 grape crop, as we see this could be a very good  
10 year for grape growers in Virginia, same thing  
11 with hemp growers.

12           The genetics of the plant as we see  
13 it and use it now are in their infancy, there are  
14 so much variability, and I'm sure from the  
15 applications that have been filed and the playing  
16 reports the number of difficult cultivar strains  
17 of industrial hemp that are being grown in  
18 Virginia is probably in the hundreds, with many  
19 names that none of us know the genetic background  
20 of. I can even say that for the strainings that  
21 we grow because they are our seedling selections  
22 and our process.

23           So when we start looking at the  
24 genetics of it, in the near term it's difficult.  
25 In the long term I believe we will see breeders

1 select plants that are more favorable to Virginia  
2 climate and to maintain that .3 percent level.

3 Well at the same time here we are in  
4 the here and now and it's a difficult area. I  
5 would rather see some leeway on the .3 percent to  
6 .6 rather than leeway on mycotoxin microbial and  
7 lead in heavy metals.

8 Those are things that once they reach  
9 the consumer's hands we can't take back. We have  
10 no chance at that point as far as THCA, THC  
11 levels, those are things that processors can  
12 dilute, can have an effect on, and I know that  
13 Virginia reversed itself on food products.

14 I would like see some reversal for  
15 this fall's crop to allow everybody a little bit  
16 of leeway knowing that the processors have the  
17 ability to change the final outcome.

18 JEWEL BRONAUGH, Ph.D.: Thank you.  
19 Is there anyone who has not had an opportunity to  
20 speak or did not sign up for public comment and  
21 wishes to make any general comments as they  
22 pertain to the production standards of industrial  
23 hemp derived oil?

24 KYLE SHREVE: Kyle Shreve, Madam  
25 Commissioner, of the Virginia Agribusiness

1 Council. I just want to thank you and represent  
2 to the Board of Pharmacy, the Department of Health  
3 and Human Services as well as the Secretary of  
4 Agriculture and Forestry, for taking the time to  
5 develop standards.

6 I think one thing that everybody can  
7 agree on while we talk about the details is that  
8 we need some type of standard both to give  
9 producers clarity on what the rules of the road  
10 are, give the processors clarity and give  
11 consumers clarity so that there isn't any  
12 confusion.

13 So I really do appreciate, the  
14 industry appreciates you taking the time to get  
15 these right, to get a state action plan submitted  
16 to the USDA so that the industry has certainty, we  
17 don't keep -- I said this very similar to the  
18 Board of Agriculture and Consumer Services due to  
19 the provisions in the Farm Bill it is already  
20 being sold here in the Commonwealth and so making  
21 sure that we don't continue to fall behind in  
22 ensuring consumer safety and strengthening the  
23 industry for our farmers, for our processors and  
24 for our consumers. We really appreciate it.

25 JEWEL BRONAUGH, Ph.D.: Thank you,

1 Mr. Shreve. Farm Bureau?

2 BEN ROWE: Ben Rowe, speaking on  
3 behalf of the Virginia Farm Bureau. I just want  
4 to say thank you for the opportunity to be  
5 involved in this process both today and since the  
6 passage of the 2018 Farm Bill.

7 I would just like to say that this is  
8 a very important crop in Virginia with a lot of  
9 promise and you've seen the numbers for how many  
10 growers are out there providing them with  
11 regulatory certainty is very important.

12 We would like to see VDACS as the  
13 regulatory agency for the crop just like it is for  
14 wheat, corn or shellfish, all the other products  
15 grown in Virginia that go into our food, that are  
16 used in pharmaceuticals and other products, having  
17 certainty in having a standard is going to make  
18 this a safe product, not only for those taking a  
19 risk of growing it but also (inaudible) Thank  
20 you.

21 JEWEL BRONAUGH, Ph.D.: Thank you,  
22 Mr. Rowe. I think that covers everything with the  
23 presentation. If there is no one else who has  
24 comment, then I would like to invite Deputy  
25 Secretary Copenhaver and Deputy Secretary Figueroa

1 to make some final remarks.

2 BRAD COPENHAVER: Thank you,  
3 Commissioner, and I'm speaking for both Marvin and  
4 I here. I just want to say thank you again to  
5 everyone for coming out today. We know that this  
6 was a chunk of time out of your day, but we  
7 really, really appreciate you coming to join us  
8 and share your thoughts and your expertise as we  
9 continue throughout this process.

10 So again, the report is due by  
11 November 1st to the General Assembly, so we're  
12 going to continue to work over the next couple of  
13 months to finalize those recommendations.

14 If you have any other questions, feel  
15 free to reach out to our office and we are happy  
16 to answer it and engage. So thanks again for  
17 coming.

18 JEWEL BRONAUGH, Ph.D.: Thank you.

19 (The meeting concluded at 3:20 p.m.)  
20  
21  
22  
23  
24  
25



## 1 CERTIFICATE OF COURT REPORTER

2  
3 I, Colleen Good, hereby certify that I was the  
4 Court Reporter for the Public Meeting on the report  
5 by the Secretaries of Agriculture and Forestry and  
6 Health and Human Resources held at 1111 E. Broad  
7 Street, Richmond, Virginia, on September 4, 2019 at  
8 the time of the hearing herein.

9 I further certify that the foregoing  
10 transcript is a true and accurate record of the  
11 hearing herein.

12 Given under my hand this 25th day of  
13 September, 2019.

14  
15 \_\_\_\_\_  
16 COLLEEN GOOD, CCR, Court Reporter

17  
18  
19  
20 My Commission Expires:  
21 September 30, 2023

	20:11 <b>Administration (2)</b> 18:20;21:4	58:4,18 <b>AIDS (1)</b> 31:23	18:16 <b>approved (13)</b> 15:23;18:8,9,12,13, 15,24;19:8,16;20:5, 21;21:7;48:20	<b>aware (4)</b> 47:25;50:13;51:3; 53:16
<b>A</b>	<b>adopted (2)</b> 20:12,19	<b>air (1)</b> 51:23	<b>area (7)</b> 22:15;26:25;27:19; 34:25;35:2;49:21; 57:4	<b>B</b>
<b>ability (3)</b> 22:2;44:17;57:17	<b>adopting (1)</b> 27:24	<b>allow (4)</b> 7:23;10:21;12:6; 57:15	<b>areas (5)</b> 4:19,23;8:12;27:17; 49:21	<b>B1 (1)</b> 28:23
<b>able (9)</b> 7:6;11:9;16:4; 48:19;50:10;52:2,4; 53:2;54:9	<b>Adulterants (10)</b> 4:20;21:23;28:5,6, 12,16,18;29:14,18; 32:12	<b>allowed (2)</b> 9:2;11:21	<b>arguments (1)</b> 41:5	<b>B2 (1)</b> 28:23
<b>above (5)</b> 39:15,19,21,24; 41:18	<b>advance (1)</b> 52:14	<b>allowing (4)</b> 11:6;12:1,22;16:14	<b>argument (1)</b> 41:5	<b>back (5)</b> 7:21;26:5;27:16; 50:4;57:9
<b>absence (1)</b> 27:21	<b>aerobic (2)</b> 31:15;32:4	<b>alluded (1)</b> 52:19	<b>arguments (1)</b> 33:2	<b>background (4)</b> 7:22;17:23;26:8; 56:19
<b>abstract (1)</b> 19:17	<b>affect (2)</b> 40:17;46:24	<b>almost (1)</b> 39:16	<b>around (3)</b> 6:1;51:22;54:8	<b>Based (5)</b> 17:17;25:11;49:8; 53:11,12
<b>achieve (1)</b> 33:17	<b>affects (1)</b> 46:23	<b>amended (2)</b> 11:3,19	<b>arrive (1)</b> 7:3	<b>basically (2)</b> 37:19;44:9
<b>acid (4)</b> 24:8,11;46:21,21	<b>affirmative (3)</b> 10:4,10;24:3	<b>amending (1)</b> 17:4	<b>arsenic (1)</b> 29:2	<b>basis (1)</b> 23:10
<b>acres (1)</b> 17:20	<b>aflatoxin (3)</b> 28:23,23,23	<b>among (2)</b> 29:1;48:14	<b>aspirin (1)</b> 46:24	<b>batch (13)</b> 25:14;35:22,25; 42:11;43:6,23,24; 44:4,4,5,6,7,8
<b>Act (5)</b> 12:5;17:5,7;18:15; 39:4	<b>afternoon (7)</b> 3:3;6:12;7:13,25; 8:8,19;29:20	<b>amount (3)</b> 3:19;24:10;27:2	<b>Assembly (18)</b> 4:4,11,15;9:4,18; 10:3,20;11:2,12,23; 12:5;13:8,14;16:4; 22:13;37:18;38:7; 60:11	<b>become (2)</b> 18:24;47:10
<b>action (2)</b> 27:22;58:15	<b>Ag (1)</b> 5:21	<b>analysis (3)</b> 42:20;44:13;54:13	<b>Analyst (1)</b> 2:6	<b>begin (2)</b> 23:4;46:19
<b>actions (1)</b> 13:2	<b>Again (19)</b> 4:25;5:19;16:2; 17:12;20:3,9;23:21; 26:18;34:15;36:4,24; 41:12;43:2,7;47:9,18; 60:4,10,16	<b>ancillary (1)</b> 30:1	<b>annual (2)</b> 23:10,11	<b>beginning (2)</b> 8:7;40:24
<b>active (2)</b> 31:2;43:4	<b>against (4)</b> 21:25;22:4;35:19; 38:21	<b>anticipate (2)</b> 37:19,25	<b>assessed (1)</b> 22:5	<b>begun (1)</b> 42:9
<b>activities (1)</b> 23:17	<b>agencies (1)</b> 45:24	<b>anticipating (1)</b> 24:16	<b>assessing (1)</b> 22:1	<b>behalf (4)</b> 7:9;43:3;48:23; 59:3
<b>activity (1)</b> 43:12	<b>agency (1)</b> 59:13	<b>apologize (1)</b> 48:23	<b>assistance (1)</b> 12:6	<b>behave (1)</b> 36:5
<b>actually (4)</b> 10:11;48:6;54:14; 55:11	<b>agency's (1)</b> 7:17	<b>appears (2)</b> 15:10;35:4	<b>assistant (1)</b> 23:22	<b>behind (2)</b> 7:3;58:21
<b>add (1)</b> 50:2	<b>Agent (1)</b> 12:17	<b>applicant (1)</b> 22:1	<b>Association (4)</b> 29:22;36:5;45:13; 49:1	<b>below (2)</b> 41:22,23
<b>added (2)</b> 18:8;19:11	<b>agents (1)</b> 24:2	<b>applicants (1)</b> 22:18	<b>association's (2)</b> 45:17,19	<b>BEN (2)</b> 59:2,2
<b>addition (1)</b> 24:25	<b>ago (3)</b> 14:14;15:5;53:7	<b>applications (1)</b> 56:15	<b>assume (1)</b> 27:8	<b>beneficial (1)</b> 41:2
<b>additional (1)</b> 22:7	<b>agree (4)</b> 6:3;42:1;49:12; 58:7	<b>applied (1)</b> 23:8	<b>atmospheric (1)</b> 54:13	<b>benefit (2)</b> 10:24;31:3
<b>Additionally (1)</b> 12:11	<b>agreements (1)</b> 49:2	<b>apply (1)</b> 37:12	<b>attention (3)</b> 33:17;34:7;41:16	<b>best (5)</b> 30:25;33:13;37:1; 49:6;54:21
<b>additive (8)</b> 18:9,12,15,18,25; 19:15,20;20:4	<b>Agribusiness (1)</b> 57:25	<b>appreciate (3)</b> 58:13,24;60:7	<b>attorney (2)</b> 50:12;51:2	<b>Bettina (2)</b> 5:5,21
<b>additives (3)</b> 19:7;20:22;21:7	<b>Agricultural (2)</b> 5:25;6:5	<b>appreciates (1)</b> 58:14	<b>August (1)</b> 17:13	<b>beyond (2)</b> 10:24;37:22
<b>address (3)</b> 30:8;35:10;52:25	<b>Agriculture (19)</b> 2:4,7;3:5;4:5;5:5; 7:15;9:9;11:5;13:6; 15:17,20;17:24; 20:10,13;21:5,8,13;	<b>approach (2)</b> 45:1;54:1	<b>authoritative (1)</b> 22:14	<b>big (5)</b> 30:13;44:25;45:4; 46:18,25
<b>addressed (2)</b> 4:24;49:22		<b>appropriate (4)</b> 7:4;13:9,19;37:20	<b>authority (3)</b> 12:15;15:15;32:1	<b>Bill (10)</b> 9:1,6;11:21;14:7; 15:4,9,21;16:2;58:19;
<b>addressing (1)</b> 21:3		<b>approval (3)</b> 15:17;22:21,23	<b>available (3)</b> 19:6;42:18;44:14	
<b>administering (1)</b> 45:25		<b>approve (1)</b> 46:8	<b>awake (1)</b> 46:8	
<b>administers (4)</b> 13:25;17:24;18:5;				

59:6 <b>bills (1)</b> 16:8 <b>Bill's (1)</b> 11:20 <b>Bishop (20)</b> 29:16,20,21;32:11; 36:2,4,4;37:8;39:10; 42:24;43:2,3;45:10; 46:2;48:21,22,23; 49:13;50:1,3 <b>bit (7)</b> 13:22;15:3;17:23; 26:17;31:20;50:9; 57:15 <b>bizarre (1)</b> 52:6 <b>Blacksburg (1)</b> 38:18 <b>blazer (1)</b> 6:15 <b>blue (3)</b> 33:23;34:2,5 <b>Board (20)</b> 2:12;5:13;6:20;8:2; 10:15;12:16,21,25; 20:13;22:2,7,13,15; 23:25;24:5,19;25:4; 53:16;58:2,18 <b>both (10)</b> 5:9;25:14;30:10; 31:7;42:18;43:4; 45:14;58:8;59:5;60:3 <b>bottle (3)</b> 34:1,5;40:23 <b>bottles (1)</b> 33:23 <b>Brad (5)</b> 5:6,17,20;6:19;60:2 <b>breeders (1)</b> 56:25 <b>Bronaugh (38)</b> 2:3;3:2,8;5:18; 13:5;26:6;29:16; 32:10,15,18;34:22; 36:1;37:7;38:14; 40:10;42:2,24;43:13, 17,20;45:8;46:1,5; 47:14;48:7,21;49:10, 14,17,20;50:6;52:17; 54:3,5;57:18;58:25; 59:21;60:18 <b>Brown (2)</b> 2:9;3:10 <b>burdensome (2)</b> 31:19;37:5 <b>Bureau (2)</b> 59:1,3 <b>Business (2)</b> 29:22;49:1 <b>businesses (1)</b> 30:1 <b>buy (1)</b>	37:2 <b>buys (1)</b> 16:20  <b>C</b>  <b>cadmium (1)</b> 29:2 <b>California (6)</b> 32:25;33:12,22; 34:4,15,19 <b>call (2)</b> 23:13;27:17 <b>called (3)</b> 9:20;12:17;15:21 <b>calls (1)</b> 31:15 <b>can (23)</b> 14:2;15:16,22; 18:16,16;23:4;26:22; 27:13;39:1,2,6,6; 46:17;50:17,20; 52:13,15;53:12;55:7; 56:20;57:11,12;58:6 <b>cannabidiol (4)</b> 14:20;17:6;24:8,10 <b>cannabidiols (1)</b> 36:6 <b>cannabinoid (1)</b> 43:10 <b>cannabinoids (12)</b> 14:16,19,22;15:8; 19:13;20:2;35:15; 40:14,15;46:21;47:7, 8 <b>cannabis (21)</b> 5:12;7:18;8:4,17, 23;12:14;14:16,18; 20:23;21:1;27:22; 29:22,24;30:18;32:1, 2;36:5,20;43:3;48:23; 49:1 <b>Carey (4)</b> 5:8;7:10,10;26:23 <b>Carolina (1)</b> 28:14 <b>Caroline (11)</b> 2:12;5:13;7:21,25; 8:1,15;9:17;12:4; 22:6,10;26:7 <b>carrier (2)</b> 41:12,21 <b>case (1)</b> 38:10 <b>categories (1)</b> 25:4 <b>category (4)</b> 12:17;16:19;24:2; 35:5 <b>cater (1)</b> 31:4 <b>caught (1)</b> 52:9	<b>cautionary (1)</b> 25:25 <b>CBD (22)</b> 9:21;10:1,6;12:3, 19;14:21,25;17:4; 32:25;36:8;39:19; 40:17;45:14,18;46:7, 9;51:7,8,10;52:9; 54:14;55:14 <b>CBDA (9)</b> 36:9;40:17;45:14, 19;46:7,8,13;55:15,19 <b>CBN (1)</b> 47:4 <b>centers (1)</b> 54:8 <b>certain (6)</b> 25:13;35:15;36:6; 38:12;40:13;53:18 <b>certainty (3)</b> 58:16;59:11,17 <b>certificate (2)</b> 42:19;44:13 <b>certification (4)</b> 9:20;10:7,22;24:5 <b>certifications (2)</b> 12:7;23:23 <b>CFU (3)</b> 32:4,5,7 <b>CFUs (1)</b> 31:17 <b>chance (2)</b> 42:4;57:10 <b>change (1)</b> 57:17 <b>channels (1)</b> 46:23 <b>Chapters (1)</b> 4:3 <b>charge (1)</b> 23:20 <b>Charles (2)</b> 4:25;27:10 <b>chemical (1)</b> 25:7 <b>chemistry (1)</b> 36:13 <b>child (2)</b> 52:8,9 <b>children (1)</b> 9:25 <b>child's (1)</b> 10:2 <b>China (1)</b> 33:23 <b>choose (1)</b> 14:10 <b>chunk (1)</b> 60:6 <b>ChyloCure (2)</b> 38:17;47:19 <b>circumstances (2)</b> 50:13;52:6	<b>clarification (3)</b> 17:3;45:11;46:2 <b>clarified (1)</b> 12:2 <b>clarity (3)</b> 58:9,10,11 <b>clause (5)</b> 13:4,12,17;16:8; 17:9 <b>clear (2)</b> 3:17;15:7 <b>climate (1)</b> 57:2 <b>closed (1)</b> 7:3 <b>closely (2)</b> 3:19;20:18 <b>CO2 (2)</b> 41:19,20 <b>Coalition (1)</b> 37:11 <b>cobalt (3)</b> 33:23;34:2,5 <b>Code (1)</b> 16:24 <b>cold (1)</b> 56:7 <b>collaborative (2)</b> 6:19;7:1 <b>Colony (1)</b> 31:17 <b>Colorado (1)</b> 28:11 <b>colors (1)</b> 33:1 <b>combined (2)</b> 32:6;41:14 <b>comfortable (1)</b> 52:2 <b>coming (5)</b> 37:13;50:4;60:5,7, 17 <b>comment (21)</b> 4:19,20;26:12,19, 22;27:5,11,19;29:17; 32:12,13,17;36:3; 40:2,3;43:15,19; 49:16,19;57:20;59:24 <b>comments (10)</b> 5:10;6:11,18;8:11; 26:25;27:7;29:13; 38:20;42:25;57:21 <b>commercial (2)</b> 12:1;16:14 <b>commercially (1)</b> 11:22 <b>Commissioner (7)</b> 2:3;3:9;13:5;26:5; 45:10;57:25;60:3 <b>Commission's (1)</b> 32:1 <b>common (1)</b> 35:1	<b>commonly (2)</b> 14:21;41:19 <b>Commonwealth (4)</b> 6:2;31:5;36:16; 58:20 <b>companion (1)</b> 16:6 <b>companions (1)</b> 36:18 <b>competitive (1)</b> 22:17 <b>complete (1)</b> 4:14 <b>completely (1)</b> 7:6 <b>compliance (2)</b> 21:19;23:2 <b>comply (1)</b> 53:2 <b>component (1)</b> 12:13 <b>components (2)</b> 18:21;19:7 <b>compounds (2)</b> 41:1;47:11 <b>concentrated (2)</b> 41:10;47:7 <b>concentration (4)</b> 4:8;24:11;35:16; 41:13 <b>concern (4)</b> 9:23;29:18;30:20; 32:12 <b>concerned (3)</b> 31:20;52:21;53:24 <b>concerns (1)</b> 13:15 <b>concluded (1)</b> 60:19 <b>condition (1)</b> 10:23 <b>conditional (2)</b> 22:20,23 <b>conditions (7)</b> 12:9,10;26:2;55:8, 18,22,24 <b>conduct (1)</b> 11:10 <b>confusion (2)</b> 50:15;58:12 <b>congratulations (1)</b> 51:20 <b>consider (1)</b> 55:18 <b>consideration (1)</b> 6:23 <b>considered (1)</b> 48:4 <b>constantly (1)</b> 30:21 <b>constituents (1)</b> 9:23 <b>construction (1)</b>
---	--	--	--	---

<p>22:24 <b>Consumer (23)</b> 2:4,7;7:15;9:10; 13:15;20:7,11,13; 35:24;37:4;40:19; 41:3;42:19;44:16,19, 22;45:1,16,23;46:10; 49:7;58:18,22 <b>consumers (3)</b> 44:16;58:11,24 <b>consumer's (1)</b> 57:9 <b>consuming (3)</b> 40:20;45:7;47:1 <b>consumption (16)</b> 3:25;18:6;19:14,19; 20:4,9,17;21:6,12,16; 22:3;28:8;30:12,24; 31:10;34:14 <b>contact (1)</b> 25:24 <b>contain (3)</b> 24:13;39:11;47:6 <b>containing (3)</b> 19:18,24;46:8 <b>contains (2)</b> 47:23,23 <b>contaminants (1)</b> 25:6 <b>content (5)</b> 39:20;43:10;48:1,1; 52:20 <b>context (1)</b> 18:1 <b>continue (3)</b> 58:21;60:9,12 <b>Control (4)</b> 12:5,9;17:5,7 <b>controlled (2)</b> 15:11;25:1 <b>convene (1)</b> 13:18 <b>conversation (4)</b> 7:3,12;14:11;20:16 <b>converts (1)</b> 47:21 <b>conveying (1)</b> 42:21 <b>convoluted (1)</b> 30:25 <b>cool (1)</b> 55:9 <b>coordinating (1)</b> 7:17 <b>Copenhaver (6)</b> 5:6,15,17,20;59:25; 60:2 <b>corn (1)</b> 59:14 <b>correctly (1)</b> 39:10 <b>Cosmetics (1)</b> 18:14</p>	<p><b>Council (1)</b> 58:1 <b>count (2)</b> 32:5;36:15 <b>counterparts (1)</b> 6:9 <b>counts (1)</b> 31:16 <b>couple (1)</b> 60:12 <b>course (3)</b> 22:19;43:5;50:16 <b>covers (1)</b> 59:22 <b>create (2)</b> 10:11;11:3 <b>created (8)</b> 9:7,14,18;10:4,10; 11:8,14;12:15 <b>Criminal (1)</b> 16:23 <b>criteria (4)</b> 21:14,21,25;22:3 <b>crop (6)</b> 16:20;56:8,9;57:15; 59:8,13 <b>crops (2)</b> 55:23,24 <b>cultivar (1)</b> 56:16 <b>cultivation (1)</b> 3:23 <b>cure (1)</b> 38:22 <b>current (5)</b> 13:23,24;24:14; 35:6;54:22 <b>Currently (7)</b> 12:25;15:1;18:1; 19:6;20:23;27:22; 55:17</p>	<p><b>dealers (3)</b> 16:19;17:16;30:1 <b>deals (1)</b> 52:22 <b>decarboxylation (1)</b> 36:12 <b>December (3)</b> 15:6;16:3;22:25 <b>decided (1)</b> 6:16 <b>deem (3)</b> 28:5,18;48:19 <b>defense (3)</b> 10:5,10;24:3 <b>defined (2)</b> 17:7;22:15 <b>defines (1)</b> 24:7 <b>definition (3)</b> 8:25;15:6,10 <b>definitive (1)</b> 51:11 <b>Delegate (1)</b> 16:5 <b>deliver (1)</b> 13:7 <b>delta (2)</b> 45:22;47:5 <b>Department (17)</b> 2:4,7,9;3:11;7:14; 9:9;11:5;15:16,20; 17:24;20:10;21:5,7, 13;50:24;52:14;58:2 <b>depending (1)</b> 43:25 <b>Deputy (6)</b> 5:6,15,20;6:13; 59:24,25 <b>derived (31)</b> 3:7,24;4:2,9,18; 12:3;13:11,15;17:4; 18:2,21;19:6,11; 20:24;21:2,3,11,15; 22:2;26:19;27:23,23; 28:1,2,18;29:15; 30:12,24;31:10;35:6; 57:23 <b>describe (1)</b> 46:17 <b>designated (1)</b> 12:18 <b>desire (1)</b> 15:14 <b>detail (2)</b> 13:22;15:3 <b>details (4)</b> 8:14;13:23;22:7; 58:7 <b>detected (1)</b> 32:8 <b>determining (1)</b> 34:17 <b>develop (1)</b></p>	<p>58:5 <b>development (1)</b> 8:17 <b>DFS (1)</b> 51:6 <b>diagnosis (1)</b> 38:22 <b>dietary (2)</b> 24:15;39:3 <b>difference (6)</b> 40:16,17;46:6,18, 22,25 <b>differences (2)</b> 46:20;47:4 <b>different (7)</b> 8:5;14:1;40:15,16, 19;41:1;46:20 <b>differentiation (1)</b> 46:11 <b>difficult (7)</b> 33:1;34:18;44:19; 54:11;56:16,24;57:4 <b>dilute (2)</b> 41:18;57:12 <b>diluted (2)</b> 41:11,21 <b>dilution (1)</b> 41:8 <b>direct (2)</b> 4:4;10:15 <b>directed (3)</b> 21:4,8;38:11 <b>directing (1)</b> 13:6 <b>direction (1)</b> 26:17 <b>directions (1)</b> 25:22 <b>directly (2)</b> 9:10;11:4 <b>Director (4)</b> 2:9,12;3:11;8:2 <b>directs (2)</b> 17:9;39:5 <b>disagree (1)</b> 53:22 <b>disappointed (1)</b> 53:4 <b>disappointing (1)</b> 53:19 <b>discuss (2)</b> 13:18;26:19 <b>discussed (1)</b> 49:23 <b>discussion (4)</b> 6:9;13:13;27:17; 44:2 <b>discussions (1)</b> 51:18 <b>disease (1)</b> 38:23 <b>dispensed (6)</b> 24:20,25;25:1,19,</p>	<p>23;41:12 <b>dispensers (1)</b> 23:16 <b>dispensing (1)</b> 25:3 <b>distinction (2)</b> 8:22;45:23 <b>distinguished (1)</b> 29:21 <b>distribute (1)</b> 12:23 <b>distributor (1)</b> 35:11 <b>dollar (3)</b> 23:7,10,11 <b>done (4)</b> 40:14;41:19;42:22; 53:7 <b>doors (1)</b> 7:3 <b>dosage (2)</b> 36:22,23 <b>dosages (1)</b> 36:21 <b>dose (1)</b> 12:11 <b>down (5)</b> 22:19;32:21;40:7; 41:22;54:17 <b>Dr (4)</b> 3:10;5:8,18;7:10 <b>drastic (1)</b> 46:7 <b>drastically (1)</b> 40:19 <b>Drink (1)</b> 20:12 <b>Drug (6)</b> 12:5;17:5,7;18:14, 19;45:5 <b>dry (2)</b> 55:19;56:6 <b>DSHEA (1)</b> 39:3 <b>due (6)</b> 4:10,14;26:24;27:2; 58:18;60:10 <b>during (5)</b> 11:1;13:13;27:10; 46:9,15 <b>Dylan (11)</b> 29:16,20,21;36:4,4; 43:2,2;45:10;48:22, 22;50:3</p>
	<b>D</b>			
	<p><b>daily (1)</b> 36:23 <b>Daniel (3)</b> 5:8;7:10,10 <b>data (1)</b> 53:13 <b>date (7)</b> 25:10;26:1;35:18; 37:1,2,3;55:3 <b>David (2)</b> 2:9;3:10 <b>day (4)</b> 16:9;46:9,15;60:6 <b>days (2)</b> 34:5;37:3 <b>deadline (1)</b> 37:24 <b>dealer (1)</b> 16:20</p>	<p><b>develop (1)</b></p>	<p>24:20,25;25:1,19,</p>	
			<b>E</b>	
				<p><b>earlier (2)</b> 22:12;52:20 <b>easiest (1)</b> 7:1 <b>echo (1)</b> 6:18</p>

<b>Ecoli (2)</b> 29:7;32:7	<b>entity (1)</b> 16:20	<b>expectations (1)</b> 42:13	37:13;38:1,12	4:18;5:11
<b>edge (2)</b> 3:18;47:2	<b>environmental (1)</b> 55:8	<b>expected (1)</b> 38:1	<b>Federal (15)</b> 9:1,6;11:20,21; 14:7;15:5,11,22;16:2; 18:14;20:18,20; 21:20;27:22;35:6	<b>food (32)</b> 13:24;17:23;18:4,5, 8,9,12,14,19,25;19:1, 2,7,10,15,20,21;20:4, 9,11,17,18,22;21:7,9; 22:1;34:13;35:8; 48:14,16;57:13;59:15
<b>education (2)</b> 9:12;39:4	<b>epilepsy (2)</b> 10:2,25	<b>expertise (1)</b> 60:8	<b>fee (3)</b> 23:7,10,11	<b>Forensic (2)</b> 50:25;52:14
<b>effect (3)</b> 16:9;44:6;57:12	<b>Erin (18)</b> 2:6;5:12;7:13,14; 8:7;11:1;13:3;22:10; 26:7;27:1,16,20,21; 35:1;42:7;43:25; 48:11;54:17	<b>experts (1)</b> 30:7	<b>feedback (4)</b> 6:22;26:22;27:5; 49:24	<b>Forestry (6)</b> 3:5;4:5;5:5,21; 13:7;58:4
<b>effecting (1)</b> 56:4	<b>especially (1)</b> 45:1	<b>expiration (4)</b> 25:10;26:1;35:18; 37:2	<b>feel (9)</b> 4:23;6:3;7:4,7; 29:18;33:3;44:7; 49:22;60:14	<b>form (4)</b> 6:24;41:3;45:5; 47:8
<b>effective (1)</b> 40:18	<b>essentially (2)</b> 11:25;16:13	<b>expressed (1)</b> 9:23	<b>fees (1)</b> 23:6	<b>Forming (1)</b> 31:17
<b>effects (3)</b> 40:16;41:2;47:9	<b>establish (2)</b> 10:18;15:21	<b>extent (2)</b> 38:12;52:13	<b>fertilizer (1)</b> 56:6	<b>forms (1)</b> 46:21
<b>effort (1)</b> 6:19	<b>established (9)</b> 11:17,25;15:6,12; 16:18;21:14;25:4,10; 29:10	<b>extract (16)</b> 15:8;19:13,14,15, 18,25;20:2,6,8;21:11, 15,18,20;22:3;32:25; 46:7	<b>few (4)</b> 3:22;14:14;15:4; 53:7	<b>formulation (2)</b> 41:6,16
<b>efforts (2)</b> 7:17;28:21	<b>establishes (1)</b> 21:22	<b>extracted (1)</b> 41:21	<b>fiber (6)</b> 3:23;14:2,4,12; 55:23,24	<b>formulations (1)</b> 24:17
<b>either (2)</b> 19:2;40:22	<b>evaluating (1)</b> 20:23	<b>extraction (5)</b> 3:24;33:18;34:7; 41:10,19	<b>field (6)</b> 36:11;50:17;52:15; 54:10,15;55:3	<b>forth (3)</b> 7:22;21:1;30:3
<b>elementary (1)</b> 36:13	<b>even (3)</b> 33:20;55:23;56:20	<b>extracts (4)</b> 3:24;21:6;28:1; 33:21	<b>fields (1)</b> 54:8	<b>forthcoming (1)</b> 51:6
<b>eliminated (1)</b> 16:12	<b>evening (1)</b> 46:16	<b>F</b>	<b>Figaro (1)</b> 5:9	<b>forum (2)</b> 40:5;52:22
<b>eliminating (1)</b> 11:24	<b>event (1)</b> 38:4	<b>facilities (1)</b> 22:24	<b>FIGUEROA (3)</b> 6:12,13;59:25	<b>forward (4)</b> 5:16;6:10;26:18; 48:8
<b>else (8)</b> 27:12;34:23;42:4; 46:3;47:15;48:8;50:1; 59:23	<b>everybody (5)</b> 33:9;34:19;47:3; 57:15;58:6	<b>facility (3)</b> 38:17;48:16,17	<b>filed (1)</b> 56:15	<b>found (6)</b> 29:6;32:9;42:11,12, 16;56:5
<b>emergency (3)</b> 12:22;13:1;16:8	<b>everyone (9)</b> 3:3,13;5:19;6:13; 8:1;27:6,8,9;60:5	<b>facing (1)</b> 45:23	<b>final (6)</b> 26:24;38:2;43:5; 44:5;57:17;60:1	<b>framework (1)</b> 15:12
<b>employment (1)</b> 45:5	<b>Evolabs (1)</b> 33:22	<b>fall (2)</b> 55:9;58:21	<b>finalize (1)</b> 60:13	<b>free (4)</b> 29:18;44:23;45:3; 60:15
<b>enacted (4)</b> 9:1,18;12:5;14:8	<b>example (4)</b> 31:14;33:20;51:9; 52:5	<b>falls (1)</b> 36:10	<b>find (3)</b> 15:1;39:2;54:25	<b>fun (1)</b> 6:16
<b>enacting (1)</b> 9:6	<b>exceed (1)</b> 49:4	<b>fall's (1)</b> 57:15	<b>First (3)</b> 5:4,18;9:8	<b>further (1)</b> 54:24
<b>enactment (4)</b> 13:4,12,17;17:9	<b>exceedingly (1)</b> 55:22	<b>far (8)</b> 6:9;17:20;18:19; 31:20;34:10,16;56:4; 57:10	<b>fit (1)</b> 28:7	<b>G</b>
<b>encountered (1)</b> 33:5	<b>exceeds (1)</b> 50:22	<b>Farm (13)</b> 9:1,6;11:20,21; 14:7;15:4,9,21;16:2; 58:19;59:1,3,6	<b>floral (3)</b> 14:3,6,15	<b>G1 (1)</b> 28:23
<b>encourage (3)</b> 33:14;37:17;51:17	<b>excited (1)</b> 6:8	<b>farmers (8)</b> 6:1,15;22:39;18; 53:1,4,19,23;58:23	<b>Florida (1)</b> 28:9	<b>G2 (1)</b> 28:24
<b>end (2)</b> 40:8;54:19	<b>exciting (2)</b> 3:15;6:2	<b>fast (1)</b> 3:15	<b>flower (1)</b> 14:25	<b>gave (1)</b> 30:17
<b>endangering (1)</b> 52:8	<b>excuse (1)</b> 39:12	<b>favor (1)</b> 55:20	<b>flowers (1)</b> 14:23	<b>General (27)</b> 4:4,10,14;8:16;9:4, 18;10:3,20;11:2,12, 23;12:5;13:8,14;16:4; 18:7;22:12;37:18; 38:7;40:2;41:6,11; 44:12;48:14;51:2; 57:21;60:11
<b>endangerment (1)</b> 52:8	<b>Executive (2)</b> 2:12;8:1	<b>favorable (1)</b> 57:1	<b>flying (1)</b> 33:1	<b>generally (4)</b>
<b>enforce (1)</b> 52:4	<b>exempt (1)</b> 13:2	<b>FDA (10)</b> 18:16,19;19:2; 20:19,21,25;27:22;	<b>focus (3)</b> 4:1;26:21,25	
<b>enforcement (9)</b> 50:15,17;51:1,13, 18,25;52:1,13,15	<b>expanded (1)</b> 10:21		<b>follow (4)</b> 31:24;33:14;34:18; 47:18	
<b>enforcing (1)</b> 45:25	<b>expect (1)</b> 38:9		<b>followed (2)</b>	
<b>engage (1)</b> 60:16				
<b>ensure (1)</b> 49:7				
<b>ensuring (1)</b> 58:22				

<p>14:1;18:16,17; 28:20 <b>genetic (1)</b> 56:19 <b>genetics (2)</b> 56:12,24 <b>given (6)</b> 13:17;30:11,23; 31:9;37:23;38:2 <b>glands (1)</b> 14:24 <b>goes (2)</b> 31:20;39:24 <b>Good (14)</b> 3:2;6:12;7:11,13, 25;21:16;24:15; 29:20;34:10,16; 41:25;44:10;52:3; 56:9 <b>Governor (3)</b> 16:10,10;17:12 <b>grain (3)</b> 3:23;14:3,12 <b>gram (1)</b> 32:7 <b>granted (1)</b> 23:3 <b>grape (3)</b> 56:8,9,10 <b>grass (2)</b> 18:20,22 <b>great (2)</b> 3:19;6:9 <b>greater (5)</b> 4:8;8:23;13:10; 16:25;55:10 <b>Green (2)</b> 4:25;27:10 <b>grow (7)</b> 3:22;9:14;11:7; 14:2,10;33:10;56:21 <b>grower (8)</b> 9:14;11:13,14; 16:17;44:4,7;52:21; 55:1 <b>growers (16)</b> 16:21;17:14,18; 23:14;29:25;32:23; 33:6;49:9;51:20; 52:22;55:13,21,23; 56:10,11;59:10 <b>growing (8)</b> 3:16;14:5,12;17:19, 20;34:7;55:18;59:19 <b>grown (5)</b> 9:2;11:21;21:19; 56:17;59:15 <b>guardian (2)</b> 10:5;12:19 <b>guardians (2)</b> 24:1,6 <b>guidance (6)</b> 26:17;30:11,22,23;</p>	<p>31:9;39:2 <b>guidelines (2)</b> 31:25;34:17 <b>guys (1)</b> 48:24</p> <p style="text-align: center;"><b>H</b></p> <p><b>handed (1)</b> 27:11 <b>hands (1)</b> 57:9 <b>happen (3)</b> 8:13;53:5,14 <b>happening (1)</b> 52:11 <b>happy (5)</b> 3:10;5:23;8:6; 53:25;60:15 <b>hard (1)</b> 33:16 <b>Health (15)</b> 2:9;3:5,11;4:6;5:7; 6:7,10,14;10:18;13:7; 14:25;22:15,16;39:3; 58:2 <b>hear (2)</b> 8:5;29:13 <b>heard (1)</b> 51:5 <b>hearing (1)</b> 6:11 <b>heavy (6)</b> 21:23;25:6;29:1,1; 32:21;57:7 <b>Hello (1)</b> 32:20 <b>help (3)</b> 50:10;52:13,13 <b>hemp (106)</b> 3:7,16,23,24;4:2,9, 17;6:2,4;7:19;8:20, 20,22,23;9:2,5,7,8,14; 11:2,7,11,14,16,18,20, 21;12:1,3;13:3,11,15, 22,23;14:1,2,5,6,9,10, 11,13,15,19;15:7,7,9, 13,15;16:13,14,17,19, 20,22,24,24;17:4,6, 14,15,15,21;18:2,21, 22,23,23;19:5,10; 20:22;21:3,5,9,11,14, 15,19;22:2;26:9,19; 27:23;28:1,1,18; 29:14;30:12,24;31:8, 9;33:11;35:2,3,13; 37:11;38:17;40:25; 50:18,18;51:9,14,20; 52:20;56:11,17;57:23 <b>herself (1)</b> 7:24 <b>higher (3)</b> 9:11;33:3;51:10</p>	<p><b>highlight (2)</b> 27:1,16 <b>highlights (1)</b> 27:20 <b>highly (2)</b> 44:13;47:7 <b>hitting (1)</b> 51:20 <b>HIV (1)</b> 31:23 <b>honest (1)</b> 6:22 <b>honesty (1)</b> 7:8 <b>hope (5)</b> 3:20;7:11;11:15; 37:21;38:11 <b>hot (6)</b> 39:14,25;41:6;55:6, 19;56:6 <b>hulled (4)</b> 18:22;45:17,18,22 <b>Human (22)</b> 3:6,24;4:6;5:8;6:10, 14;13:7;18:6;19:14, 19;20:4,8,17;21:6,12, 16;22:3;28:7;30:12, 24;31:10;58:3 <b>hundred (2)</b> 32:3,6 <b>hundreds (2)</b> 14:18;56:18 <b>hurdle (1)</b> 44:19</p> <p style="text-align: center;"><b>I</b></p> <p><b>ideal (1)</b> 55:18 <b>immune (1)</b> 31:22 <b>implement (1)</b> 7:18 <b>important (9)</b> 40:20;41:2;44:13; 46:10;47:10;48:2; 52:24;59:8,11 <b>impurities (1)</b> 43:11 <b>inaudible (3)</b> 31:16;47:24;59:19 <b>incapacitated (1)</b> 31:22 <b>include (16)</b> 4:20;21:16;25:5,19; 26:24;28:16,23;29:7; 32:2;35:7,8,14;36:8, 22;37:1;43:9 <b>included (1)</b> 13:4 <b>includes (2)</b> 15:7;17:9 <b>including (2)</b></p>	<p>21:23;35:22 <b>independent (1)</b> 42:14 <b>independently (1)</b> 25:2 <b>indicate (2)</b> 23:2,8 <b>indicated (2)</b> 5:1;22:12 <b>indicates (1)</b> 24:9 <b>individual (1)</b> 12:18 <b>individually (1)</b> 27:18 <b>individuals (1)</b> 23:24 <b>industrial (26)</b> 3:7;4:2,9,17;7:19; 8:20,23;9:2,7;11:2,14, 18;13:22;16:17,19; 17:5,14,15,15;21:9; 26:8;31:8;33:11; 37:10;56:17;57:22 <b>industries (1)</b> 14:9 <b>industry (15)</b> 3:16,18,21;6:1,5; 14:11,19;33:7;40:25; 42:15;47:3;49:6; 58:14,16,23 <b>infallible (1)</b> 54:16 <b>infancy (1)</b> 56:13 <b>influence (1)</b> 56:5 <b>information (7)</b> 7:23;25:24;35:23, 24;36:25;42:17,21 <b>infrastructure (1)</b> 11:16 <b>ingested (1)</b> 18:6 <b>ingredient (3)</b> 25:8;35:9;43:5 <b>ingredients (2)</b> 31:2;36:25 <b>initial (3)</b> 9:7,13;23:7 <b>initially (3)</b> 7:22;9:1;14:11 <b>initials (1)</b> 25:23 <b>inspected (1)</b> 48:15 <b>inspection (9)</b> 4:22;19:1,23;21:10; 22:25;23:3,9;48:10, 19 <b>instance (3)</b> 9:25;25:18,20 <b>instances (1)</b></p>	<p>52:5 <b>institutions (1)</b> 9:11 <b>intended (9)</b> 18:5;19:14,19;20:3, 8;21:6,11,15;38:22 <b>intending (1)</b> 21:10 <b>intentionally (1)</b> 18:8 <b>interaction (1)</b> 47:12 <b>interchangeably (1)</b> 8:21 <b>interest (4)</b> 3:15;11:6;14:9,14 <b>interested (2)</b> 14:12,20 <b>interim (2)</b> 38:1,4 <b>intervals (1)</b> 43:9 <b>into (11)</b> 6:23;8:10,14;16:9; 17:25;19:17;20:6; 36:14;41:12;44:6; 59:15 <b>introduce (1)</b> 7:23 <b>introductory (1)</b> 5:10 <b>investment (1)</b> 3:20 <b>invite (1)</b> 59:24 <b>involved (1)</b> 59:5 <b>iron (1)</b> 7:6 <b>issue (12)</b> 9:19;10:16,22;12:7, 16;18:16;22:14,20; 23:22;40:1;50:9,25 <b>issued (4)</b> 10:6;18:20;22:23; 24:6 <b>issues (1)</b> 53:1 <b>iteration (1)</b> 28:22</p> <p style="text-align: center;"><b>J</b></p> <p><b>Jewel (37)</b> 2:3;3:2,8;5:20; 26:6;29:16;32:10,15, 18;34:22;36:1;37:7; 38:14;40:10;42:2,24; 43:13,17,20;45:8; 46:1,5;47:14;48:7,21; 49:10,14,17,20;50:6; 52:17;54:3,5;57:18; 58:25;59:21;60:18</p>
---	---	---	---	--

<b>Jim (1)</b> 38:18	<b>large (1)</b> 29:25	9:14,16;11:13	<b>ma'am (2)</b> 43:12;48:22	46:4;50:5;51:6
<b>job (1)</b> 45:6	<b>last (6)</b> 40:13;42:1;49:21; 54:17;55:6,22	<b>licensed (1)</b> 23:14	<b>Madam (1)</b> 57:24	<b>maybe (3)</b> 37:24;40:1;53:19
<b>Johnston (13)</b> 32:11,13;37:8,9,10; 38:15;43:14,15; 49:11,12;50:7,8; 52:18	<b>late (1)</b> 16:2	<b>licensing (2)</b> 12:16;24:1	<b>maintain (2)</b> 37:4;57:2	<b>mean (2)</b> 8:21,23
<b>join (1)</b> 60:7	<b>later (4)</b> 4:11;40:2;50:5; 55:14	<b>licensure (1)</b> 11:13	<b>making (4)</b> 38:1,2,5;58:20	<b>means (2)</b> 51:21;54:23
<b>joined (1)</b> 3:10	<b>law (22)</b> 9:7,7,18;11:3,19; 18:4;20:12,14,17,19; 21:20;24:7;50:15,17; 51:1,12,18,25;52:1,3, 13,15	<b>life (1)</b> 37:2	<b>managed (2)</b> 9:11;11:4	<b>meant (1)</b> 16:9
<b>June (1)</b> 30:18	<b>lawful (1)</b> 17:1	<b>likely (1)</b> 8:20	<b>management (1)</b> 33:13	<b>measure (1)</b> 48:5
<b>Juran (7)</b> 2:12;5:13;7:25;8:1; 9:17;12:4;22:10	<b>laws (2)</b> 13:25;17:23	<b>limit (2)</b> 27:6;34:4	<b>mandate (1)</b> 43:8	<b>measuring (1)</b> 54:14
<b>K</b>	<b>lays (1)</b> 18:15	<b>limited (1)</b> 27:2	<b>mandated (1)</b> 12:21	<b>medical (6)</b> 10:23;12:8,9;30:17; 31:25;32:2
<b>keep (3)</b> 36:19;46:8;58:17	<b>lead (5)</b> 29:2;33:22,24;34:3; 57:7	<b>limits (2)</b> 29:10;33:3	<b>manufacture (2)</b> 21:11;22:2	<b>medication (1)</b> 38:22
<b>Kentucky (1)</b> 28:17	<b>leading (3)</b> 3:18;5:24;47:2	<b>line (1)</b> 36:10	<b>manufactured (4)</b> 4:22;19:22;48:9,13	<b>meet (3)</b> 34:20;39:18;49:3
<b>Kevin (1)</b> 54:17	<b>learn (1)</b> 33:9	<b>list (8)</b> 15:11;28:17;30:13; 31:2,10;32:21;36:2; 49:23	<b>manufacturer (5)</b> 18:25;19:3;35:10; 42:17;48:19	<b>meeting (7)</b> 3:4;4:1,12;6:16; 8:8;28:3;60:19
<b>Kind (2)</b> 6:18;26:7	<b>learning (1)</b> 33:7	<b>listed (4)</b> 30:19;34:12;36:21; 45:18	<b>manufacturers (1)</b> 37:6	<b>meetings (1)</b> 52:25
<b>kinds (2)</b> 47:12;54:7	<b>least (1)</b> 28:15	<b>listening (1)</b> 7:9	<b>manufacturing (3)</b> 21:17;24:15;37:1	<b>MEMBERS (3)</b> 2:1;30:4,5
<b>Kingsland (1)</b> 32:22	<b>leeway (3)</b> 57:5,6,16	<b>listeria (1)</b> 29:7	<b>many (6)</b> 3:18,21;33:6;40:15; 56:18;59:9	<b>mentioned (2)</b> 13:5;15:4
<b>knowing (1)</b> 57:16	<b>left (2)</b> 5:1;14:4	<b>little (10)</b> 13:21;14:24;15:3; 17:22;26:16;31:18, 20;45:22;50:9;57:15	<b>March (3)</b> 16:11,15;17:13	<b>mercury (1)</b> 29:3
<b>knowledge (2)</b> 50:14;52:3	<b>legal (2)</b> 34:3;45:21	<b>long (2)</b> 16:24;56:25	<b>marijuana (3)</b> 15:10;16:23;50:19	<b>metals (6)</b> 21:23;25:6;29:1,1; 32:21;57:7
<b>knows (1)</b> 27:8	<b>legislation (13)</b> 9:13;10:14;13:4; 15:5;16:6,11,12,16, 22;17:2,8,13;21:3	<b>longer (3)</b> 55:9,19,20	<b>market (2)</b> 15:2;46:11	<b>method (2)</b> 35:23;42:21
<b>Kyle (2)</b> 57:24,24	<b>legislatures (1)</b> 9:24	<b>look (6)</b> 6:10;19:5,24;28:3; 40:25;55:7	<b>marketable (1)</b> 45:21	<b>mg (1)</b> 12:12
<b>L</b>	<b>legitimate (1)</b> 51:14	<b>looked (6)</b> 28:9,11,13;42:7; 53:8;56:3	<b>marketed (1)</b> 20:1	<b>micro (1)</b> 28:21
<b>lab (1)</b> 42:20	<b>lense (1)</b> 6:7	<b>looking (9)</b> 6:6;40:15;41:7,20, 24;43:24;48:18; 55:17;56:23	<b>markets (1)</b> 31:5	<b>microbial (4)</b> 31:15;32:5;33:2,3
<b>label (4)</b> 25:14;35:19,22; 39:11	<b>less (7)</b> 27:7;31:16;32:4,5, 7;47:5,11	<b>losing (1)</b> 54:19	<b>Marshall (1)</b> 16:5	<b>microbials (1)</b> 57:6
<b>labeled (2)</b> 20:1;30:15	<b>level (15)</b> 39:19,23,24;41:13, 22;43:23;44:5,7,8,20, 24;45:2;48:4;55:25; 57:2	<b>lot (11)</b> 3:14;6:4;7:2;34:6; 39:14;51:22,23;53:3; 55:13,23;59:8	<b>Marvin (4)</b> 5:9;6:12,13;60:3	<b>microbiological (4)</b> 21:24;25:5;31:6; 43:11
<b>labeling (15)</b> 4:20;25:13,16;35:4, 5,12;36:3,6,21;37:14, 20;42:5;45:3,15,23	<b>levels (7)</b> 29:5;55:11,14,15, 16;56:4;57:11	<b>love (2)</b> 40:12;42:1	<b>Maryland (2)</b> 30:16;31:25	<b>microbiologicals (1)</b> 29:6
<b>laboratories (2)</b> 42:13,14	<b>liability (1)</b> 44:9	<b>low (2)</b> 31:14;44:22	<b>Massachusetts (1)</b> 28:10	<b>micrograms (1)</b> 34:3
<b>laboratory (5)</b> 25:3;30:2,6;31:4,12	<b>license (3)</b>	<b>lower (3)</b> 33:2,8;55:5	<b>material (5)</b> 14:3;41:8,17,21; 55:2	<b>might (6)</b> 19:17;31:19;37:12; 38:25;50:10;52:7
<b>lack (2)</b> 50:14,17			<b>materials (1)</b> 34:8	<b>milligrams (6)</b> 34:2;35:14;40:13, 22,22;44:21
<b>language (1)</b> 39:5			<b>matter (1)</b> 30:7	<b>mind (1)</b> 50:4
			<b>matters (2)</b> 37:12,15	<b>mini (1)</b> 52:25
			<b>maximum (4)</b> 29:5,9;36:23;39:22	<b>minimal (1)</b> 45:20
		<b>M</b>	<b>may (6)</b> 23:22;24:20;38:5;	

<p><b>minimum (2)</b> 24:10;44:14</p> <p><b>minor (1)</b> 33:21</p> <p><b>minutes (2)</b> 15:4;27:7</p> <p><b>mirror (1)</b> 20:18</p> <p><b>ml (1)</b> 40:23</p> <p><b>model (1)</b> 23:13</p> <p><b>models (1)</b> 34:15</p> <p><b>moderator (1)</b> 3:9</p> <p><b>mold (1)</b> 29:9</p> <p><b>molds (1)</b> 32:6</p> <p><b>monitoring (1)</b> 24:22</p> <p><b>months (2)</b> 43:8;60:13</p> <p><b>more (10)</b> 6:16;11:6;13:22,23; 21:21;24:13;38:13; 47:11;53:25;57:1</p> <p><b>Most (1)</b> 55:4</p> <p><b>mouthful (1)</b> 29:23</p> <p><b>move (4)</b> 8:10;26:11,18;48:8</p> <p><b>moved (1)</b> 55:7</p> <p><b>much (4)</b> 47:5,11;56:2,14</p> <p><b>must (9)</b> 18:8,9;21:18;24:9, 14,18;25:2,8;42:17</p> <p><b>mycotoxin (1)</b> 57:6</p> <p><b>mycotoxins (2)</b> 21:23;25:6</p>	<p>56:24</p> <p><b>necessarily (2)</b> 45:18;48:5</p> <p><b>necessary (4)</b> 33:8;44:18;54:10, 24</p> <p><b>need (7)</b> 19:8,15,22;30:14; 46:19;51:4;58:8</p> <p><b>needs (3)</b> 18:25;20:4;34:17</p> <p><b>net (1)</b> 35:9</p> <p><b>new (4)</b> 6:2;12:16;15:6; 24:1</p> <p><b>next (1)</b> 60:12</p> <p><b>nitrogen (1)</b> 56:4</p> <p><b>non (4)</b> 31:16;32:8;46:21, 25</p> <p><b>none (2)</b> 32:9;56:19</p> <p><b>nonetheless (1)</b> 7:7</p> <p><b>nor (1)</b> 28:16</p> <p><b>normal (1)</b> 31:21</p> <p><b>North (1)</b> 28:14</p> <p><b>Northam (2)</b> 16:10;21:4</p> <p><b>noted (1)</b> 33:23</p> <p><b>notification (2)</b> 18:17,22</p> <p><b>notifications (1)</b> 18:21</p> <p><b>notified (1)</b> 38:10</p> <p><b>November (5)</b> 4:11;26:24;37:23; 38:5;60:11</p> <p><b>NSAIDS (1)</b> 46:24</p> <p><b>nuances (1)</b> 47:3</p> <p><b>number (8)</b> 25:20;35:14,23; 37:3;40:13,25;44:6; 56:16</p> <p><b>numbers (2)</b> 29:9;59:9</p> <p><b>nurse (1)</b> 23:22</p>	<p>35:24</p> <p><b>occur (1)</b> 23:17</p> <p><b>occurred (1)</b> 13:13</p> <p><b>occurs (1)</b> 38:5</p> <p><b>ochratoxin (1)</b> 28:24</p> <p><b>offer (1)</b> 45:11</p> <p><b>office (3)</b> 7:16;54:18;60:15</p> <p><b>officer (1)</b> 52:7</p> <p><b>often (3)</b> 14:25;19:25;35:21</p> <p><b>oil (25)</b> 3:7;4:3,8,18;9:21; 10:1,6;12:3,20;13:10; 17:4,6;18:23;19:11, 18,18,24;20:6,7;24:8, 9,10;26:19;27:23; 57:23</p> <p><b>oils (12)</b> 10:8,12;18:2;21:3; 23:24;24:4;28:2; 29:15;30:12,24; 31:10;35:3</p> <p><b>OMRI (1)</b> 34:11</p> <p><b>O-M-R-I (1)</b> 34:12</p> <p><b>once (2)</b> 41:18;57:8</p> <p><b>one (23)</b> 6:17;7:9;14:6; 22:14;24:25;27:17; 32:6;33:20,25;35:5; 37:14;38:20;39:5,5,7; 43:9;46:15;47:8;51:5; 54:20,23;58:6;59:23</p> <p><b>only (6)</b> 20:21;27:5;31:20; 44:23;45:15;59:18</p> <p><b>open (4)</b> 6:21;7:8;49:24; 54:7</p> <p><b>opening (1)</b> 37:3</p> <p><b>opens (1)</b> 33:4</p> <p><b>operate (2)</b> 15:22;23:19</p> <p><b>operating (2)</b> 19:4;28:10</p> <p><b>operation (2)</b> 23:5,13</p> <p><b>opining (1)</b> 37:15</p> <p><b>opinion (2)</b> 45:17;53:11</p> <p><b>opportunity (10)</b></p>	<p>4:18;6:3,4;8:10; 11:8;13:18;26:14; 27:4;57:19;59:4</p> <p><b>orally (1)</b> 18:6</p> <p><b>order (4)</b> 4:13;10:1;27:18,19</p> <p><b>Oregon (1)</b> 28:11</p> <p><b>original (1)</b> 41:8</p> <p><b>originally (1)</b> 22:19</p> <p><b>others (1)</b> 49:25</p> <p><b>otherwise (1)</b> 17:1</p> <p><b>ought (1)</b> 36:18</p> <p><b>out (10)</b> 7:6;10:1;18:15; 31:9;36:11;51:10; 59:10;60:5,6,15</p> <p><b>outcome (1)</b> 57:17</p> <p><b>outcry (1)</b> 9:22</p> <p><b>outfits (3)</b> 30:2,6;31:4</p> <p><b>outlines (1)</b> 15:18</p> <p><b>outside (2)</b> 50:9;52:23</p> <p><b>over (5)</b> 15:15;26:5;27:16; 40:8;60:12</p> <p><b>overly (1)</b> 37:5</p> <p><b>overseeing (2)</b> 8:3;18:1</p> <p><b>overseen (1)</b> 9:9</p> <p><b>overview (2)</b> 5:11;8:9</p> <p><b>own (2)</b> 27:25;44:9</p>	<p><b>parent (2)</b> 10:5;12:19</p> <p><b>parents (3)</b> 24:1,6;52:6</p> <p><b>part (4)</b> 4:12;5:23;45:5; 50:15</p> <p><b>particular (3)</b> 24:23;26:3;30:7</p> <p><b>particularly (3)</b> 30:5,23;52:21</p> <p><b>partner (2)</b> 11:9;38:19</p> <p><b>Partners (1)</b> 32:22</p> <p><b>parts (1)</b> 20:22</p> <p><b>passage (1)</b> 59:6</p> <p><b>passed (2)</b> 16:6;33:1</p> <p><b>past (1)</b> 7:20</p> <p><b>path (2)</b> 18:11;21:1</p> <p><b>patient (7)</b> 9:20;10:5,24;12:18; 24:24;25:21;31:21</p> <p><b>patients (4)</b> 9:24;12:8;24:1,6</p> <p><b>patient's (1)</b> 25:15</p> <p><b>pay (1)</b> 23:11</p> <p><b>paying (3)</b> 33:17;34:6;41:16</p> <p><b>peers (1)</b> 48:15</p> <p><b>people (4)</b> 3:14;33:6;46:19; 47:25</p> <p><b>people's (1)</b> 39:14</p> <p><b>per (6)</b> 22:14;32:7;35:15; 40:14,22,23</p> <p><b>percent (26)</b> 4:9;8:24;13:10; 16:25;21:21;24:14; 39:16,19,20,22;41:9, 15,18,20,23;50:23; 51:12;53:2,10,12,24; 54:9;55:1,4;57:2,5</p> <p><b>percentage (1)</b> 40:4</p> <p><b>perception (1)</b> 49:6</p> <p><b>perform (1)</b> 25:8</p> <p><b>period (1)</b> 26:19</p> <p><b>permissibility (2)</b> 12:2;17:3</p>
<p style="text-align: center;"><b>N</b></p>	<p style="text-align: center;"><b>O</b></p>	<p style="text-align: center;"><b>P</b></p>	<p><b>packaged (1)</b> 35:8</p> <p><b>packaging (2)</b> 34:8;35:4</p> <p><b>packer (1)</b> 35:11</p> <p><b>paid (1)</b> 23:6</p> <p><b>pain (3)</b> 46:14,14,16</p> <p><b>panel (1)</b> 29:21</p> <p><b>parameters (1)</b> 44:18</p>	
<p><b>name (9)</b> 3:8;6:13;25:20,21, 22;29:21;35:9,10; 37:9</p> <p><b>named (1)</b> 47:13</p> <p><b>names (1)</b> 56:19</p> <p><b>narrow (1)</b> 37:19</p> <p><b>nationally (1)</b> 27:24</p> <p><b>NC (1)</b> 56:2</p> <p><b>near (1)</b></p>	<p><b>obtain (4)</b> 9:15;10:1;12:19;</p>	<p><b>opening (1)</b> 37:3</p> <p><b>operating (2)</b> 19:4;28:10</p> <p><b>operation (2)</b> 23:5,13</p> <p><b>opining (1)</b> 37:15</p> <p><b>opinion (2)</b> 45:17;53:11</p> <p><b>opportunity (10)</b></p>	<p><b>parent (2)</b> 10:5;12:19</p> <p><b>parents (3)</b> 24:1,6;52:6</p> <p><b>part (4)</b> 4:12;5:23;45:5; 50:15</p> <p><b>particular (3)</b> 24:23;26:3;30:7</p> <p><b>particularly (3)</b> 30:5,23;52:21</p> <p><b>partner (2)</b> 11:9;38:19</p> <p><b>Partners (1)</b> 32:22</p> <p><b>parts (1)</b> 20:22</p> <p><b>passage (1)</b> 59:6</p> <p><b>passed (2)</b> 16:6;33:1</p> <p><b>past (1)</b> 7:20</p> <p><b>path (2)</b> 18:11;21:1</p> <p><b>patient (7)</b> 9:20;10:5,24;12:18; 24:24;25:21;31:21</p> <p><b>patients (4)</b> 9:24;12:8;24:1,6</p> <p><b>patient's (1)</b> 25:15</p> <p><b>pay (1)</b> 23:11</p> <p><b>paying (3)</b> 33:17;34:6;41:16</p> <p><b>peers (1)</b> 48:15</p> <p><b>people (4)</b> 3:14;33:6;46:19; 47:25</p> <p><b>people's (1)</b> 39:14</p> <p><b>per (6)</b> 22:14;32:7;35:15; 40:14,22,23</p> <p><b>percent (26)</b> 4:9;8:24;13:10; 16:25;21:21;24:14; 39:16,19,20,22;41:9, 15,18,20,23;50:23; 51:12;53:2,10,12,24; 54:9;55:1,4;57:2,5</p> <p><b>percentage (1)</b> 40:4</p> <p><b>perception (1)</b> 49:6</p> <p><b>perform (1)</b> 25:8</p> <p><b>period (1)</b> 26:19</p> <p><b>permissibility (2)</b> 12:2;17:3</p>	



<p><b>permit (3)</b> 22:8;23:4,8</p> <p><b>permits (2)</b> 10:16;22:14</p> <p><b>person (1)</b> 33:15</p> <p><b>pertain (2)</b> 35:17;57:22</p> <p><b>pertaining (2)</b> 20:16;42:25</p> <p><b>pertains (1)</b> 35:3</p> <p><b>pesticide (5)</b> 25:7;29:10;30:8,9; 34:11</p> <p><b>pesticides (7)</b> 21:24;30:14,19,22; 31:2,3;34:10</p> <p><b>pharmaceutical (12)</b> 8:3;10:16;12:20,23; 22:8,11;23:4,18; 25:24;26:9;30:10; 31:7</p> <p><b>pharmaceuticals (1)</b> 59:16</p> <p><b>Pharmacies (1)</b> 22:8</p> <p><b>pharmacist (4)</b> 23:20;24:23;25:22, 23</p> <p><b>Pharmacopeia (2)</b> 31:11,15</p> <p><b>Pharmacy (16)</b> 2:13;5:14;6:20;8:2; 10:15,17;12:16,21,25; 22:13;23:25;24:19; 25:4,19;53:16;58:2</p> <p><b>phase (2)</b> 22:17,22</p> <p><b>PhD (35)</b> 2:3;3:2;26:6;29:16; 32:10,15,18;34:22; 36:1;37:7;38:14; 40:10;42:2,24;43:13, 17,20;45:8;46:1,5; 47:14;48:7,21;49:10, 14,17,20;50:6;52:17; 54:3,5;57:18;58:25; 59:21;60:18</p> <p><b>phen (1)</b> 32:8</p> <p><b>physician (6)</b> 9:19;10:7,21;12:6; 23:21,21</p> <p><b>Piccariello (14)</b> 32:16,17;38:15,16; 40:11;43:18,19; 47:17,19;49:15,16; 52:18,19;54:4</p> <p><b>picture (3)</b> 14:3,4,5</p> <p><b>pieces (1)</b> 16:11</p>	<p><b>place (3)</b> 7:4;21:8;34:16</p> <p><b>plan (6)</b> 15:16,17,22,24; 21:14;58:15</p> <p><b>Planning (1)</b> 7:16</p> <p><b>plant (12)</b> 12:14;13:11;14:18, 22,23;15:8;19:12,13; 20:2,3;39:22;56:12</p> <p><b>planted (1)</b> 17:21</p> <p><b>plants (3)</b> 14:17;55:15;57:1</p> <p><b>playing (1)</b> 56:15</p> <p><b>Please (5)</b> 5:2,15;26:25;27:6; 29:18</p> <p><b>pm (1)</b> 60:19</p> <p><b>point (11)</b> 14:20;27:15;29:12; 33:9;39:7,9;45:11; 46:4,10;55:5;57:10</p> <p><b>policies (1)</b> 38:25</p> <p><b>Policy (3)</b> 2:6;7:16;44:10</p> <p><b>Politis (1)</b> 38:18</p> <p><b>polled (1)</b> 30:4</p> <p><b>popular (1)</b> 33:15</p> <p><b>population (1)</b> 31:21</p> <p><b>poses (1)</b> 41:14</p> <p><b>possess (2)</b> 9:21;10:6</p> <p><b>possessing (1)</b> 24:4</p> <p><b>possession (1)</b> 12:3</p> <p><b>possible (1)</b> 34:21</p> <p><b>post (1)</b> 36:12</p> <p><b>potential (4)</b> 21:2;33:4;48:5; 55:10</p> <p><b>potentially (1)</b> 41:1</p> <p><b>practices (2)</b> 24:15;33:13</p> <p><b>practitioner (1)</b> 23:22</p> <p><b>practitioners (1)</b> 12:7</p> <p><b>premise (1)</b> 18:7</p>	<p><b>preparation (1)</b> 28:2</p> <p><b>preparations (1)</b> 31:16</p> <p><b>prepare (1)</b> 4:6</p> <p><b>prepared (1)</b> 53:18</p> <p><b>prescribe (1)</b> 28:25</p> <p><b>prescriber (2)</b> 10:23;24:23</p> <p><b>prescription (1)</b> 24:22</p> <p><b>presence (1)</b> 50:21</p> <p><b>PRESENT (3)</b> 2:1;14:16;37:24</p> <p><b>presentation (4)</b> 4:16;8:6;26:12; 59:23</p> <p><b>presented (1)</b> 5:12</p> <p><b>president's (1)</b> 16:1</p> <p><b>presumptive (2)</b> 54:22,23</p> <p><b>pretty (2)</b> 30:13,24</p> <p><b>prevention (1)</b> 38:23</p> <p><b>previously (1)</b> 11:25</p> <p><b>prices (1)</b> 34:13</p> <p><b>primarily (1)</b> 46:8</p> <p><b>primary (1)</b> 15:14</p> <p><b>prior (1)</b> 25:3</p> <p><b>private (1)</b> 36:18</p> <p><b>probably (6)</b> 34:16;38:2;39:14; 51:14;54:21;56:18</p> <p><b>probes (1)</b> 54:13</p> <p><b>problem (6)</b> 41:14,15;50:16; 51:4;52:12;54:1</p> <p><b>problems (1)</b> 33:4</p> <p><b>procedures (2)</b> 33:18,19</p> <p><b>P-R-O-C-E-E-D-I-N-G-S (1)</b> 3:1</p> <p><b>process (15)</b> 4:13;5:24,24;7:1,2, 8;22:18;23:3;24:21; 25:12;37:13;41:11; 56:22;59:5;60:9</p> <p><b>processors (1)</b> 57:11</p>	<p><b>processing (3)</b> 11:16;38:17;53:21</p> <p><b>processor (16)</b> 8:3;10:16;11:15; 12:20;16:18;22:8,11; 23:4,18,19;25:25; 26:10;30:10;44:4,9, 10</p> <p><b>processors (15)</b> 10:19;12:23;16:21; 17:15;21:9,14;23:15; 30:1;32:23;37:5;49:9; 53:20;57:16;58:10,23</p> <p><b>produce (4)</b> 17:10;21:15,18; 39:23</p> <p><b>produced (6)</b> 14:23;21:19;24:14, 17;33:21;48:18</p> <p><b>producers (1)</b> 58:9</p> <p><b>produces (1)</b> 14:18</p> <p><b>producing (1)</b> 10:11</p> <p><b>product (41)</b> 16:23,25;19:10,25; 24:12;25:2,11,15,18, 21;28:7,19;32:24; 34:9,13;35:8,11,15, 17,18,20;38:21;39:14, 25;40:20;42:22,23; 43:5,23;44:5,23;45:7; 46:14,16;47:4,6,22; 50:21;53:5;55:4; 59:18</p> <p><b>production (16)</b> 3:6;4:2,7,17;12:1; 13:9,20;15:13,15,19; 16:14;18:2;26:20; 27:25;56:5;57:22</p> <p><b>products (36)</b> 4:22;12:24;13:15, 16,20;15:1;16:24; 17:11;19:6,21;20:24; 21:2;22:4;24:18,25; 25:10;26:1,3;27:23; 28:6;29:7,11;35:2,13; 41:5,7;42:10;44:20; 46:13;48:9,12,17; 49:3;57:13;59:14,16</p> <p><b>Professions (2)</b> 2:10;3:12</p> <p><b>profile (2)</b> 25:9,9</p> <p><b>program (20)</b> 5:12;7:19;8:4,4,18; 9:8;11:4,7,11,24; 19:3;22:1,9,12;24:22; 26:9,10;31:9;32:4,5</p> <p><b>programs (4)</b> 7:18;8:9,15;16:13</p>	<p><b>progression (2)</b> 8:16;26:8</p> <p><b>prohibition (1)</b> 38:21</p> <p><b>prohibitions (1)</b> 35:18</p> <p><b>promise (1)</b> 59:9</p> <p><b>promulgate (1)</b> 12:21</p> <p><b>proposed (3)</b> 28:13,15;42:8</p> <p><b>proposing (1)</b> 28:10</p> <p><b>protect (1)</b> 49:8</p> <p><b>protein (1)</b> 18:23</p> <p><b>protocols (1)</b> 33:18</p> <p><b>producers (12)</b> 5:10;6:4,22;7:22; 8:15;11:8;17:5;26:16, 21;27:4;30:13;39:4</p> <p><b>provided (4)</b> 10:4;17:2;22:13; 29:4</p> <p><b>provides (1)</b> 16:22</p> <p><b>providing (3)</b> 42:19;52:8;59:10</p> <p><b>provision (4)</b> 9:19;10:4,11,21</p> <p><b>provisions (4)</b> 9:5;11:20;37:20; 58:19</p> <p><b>psychoactive (3)</b> 12:13;46:23,25</p> <p><b>psychoactivity (1)</b> 48:5</p> <p><b>public (15)</b> 3:4;4:18,19;6:6,7; 8:11;9:11;26:11,22; 27:5,11;41:7;44:12; 49:6;57:20</p> <p><b>public's (1)</b> 29:13</p> <p><b>published (1)</b> 28:16</p> <p><b>purgy (1)</b> 32:8</p> <p><b>purpose (2)</b> 18:3;26:18</p> <p><b>purposes (2)</b> 9:3,15</p> <p><b>purview (1)</b> 52:23</p> <p><b>push (1)</b> 39:23</p> <p><b>put (5)</b> 3:19;19:17;20:6; 27:13;46:9</p>
--	--	---	--	---

	48:24	15:9	13:12;24:20	6:6;10:18;13:15,24; 17:23;18:4;19:1; 20:19;21:10;22:1; 37:4;44:12;48:14,16; 49:7;58:22
<b>Q</b>	<b>reenacted (1)</b> 10:14	<b>renewal (1)</b> 23:11	<b>retained (2)</b> 16:16,17	
<b>qualifying (1)</b> 21:8	<b>refer (1)</b> 29:24	<b>replaced (1)</b> 11:13	<b>retested (1)</b> 55:7	
<b>quality (1)</b> 13:14	<b>reference (1)</b> 31:11	<b>report (8)</b> 3:4;4:6,10,14;13:8; 17:10;26:24;60:10	<b>returning (1)</b> 36:2	<b>sale (1)</b> 41:7
<b>queries (1)</b> 24:23	<b>referred (1)</b> 14:21	<b>reported (1)</b> 24:21	<b>reversal (1)</b> 57:14	<b>salmonella (2)</b> 29:7;32:7
<b>quite (2)</b> 38:3;53:7	<b>reflect (1)</b> 11:19	<b>reports (3)</b> 17:17,19;56:16	<b>reversed (1)</b> 57:13	<b>Sam (7)</b> 32:11,13;37:9,10; 43:15;49:12;50:8
<b>R</b>	<b>regard (1)</b> 31:6	<b>represent (4)</b> 29:22,25;32:22; 58:1	<b>reviewed (1)</b> 38:8	<b>same (6)</b> 11:1;23:18;46:23; 55:16;56:10;57:3
<b>range (1)</b> 33:4	<b>regarding (17)</b> 13:8,14;17:3;22:7; 23:6;25:25;27:22,25; 28:4;29:1,5;35:19,22, 24:42;13,16,21	<b>representatives (1)</b> 5:25	<b>revise (1)</b> 38:6	<b>sample (1)</b> 32:9
<b>ranged (1)</b> 43:25	<b>regards (1)</b> 48:11	<b>represented (2)</b> 5:6,9	<b>Richardson (17)</b> 32:19,20;34:23; 38:16;40:11,12; 43:21,22;44:3;46:4,6; 47:15;49:18,19; 53:21;54:6,7	<b>samples (1)</b> 34:1
<b>rather (2)</b> 57:5,6	<b>Registered (9)</b> 12:17,18;17:14,18; 21:9;23:25;24:2,19; 32:22	<b>representing (2)</b> 5:21;37:10	<b>right (12)</b> 14:5;27:13;32:15; 36:1;39:17,17;40:5; 43:15,17;49:17,20; 58:15	<b>sat (1)</b> 54:17
<b>ratio (5)</b> 51:7,8,15;54:15,21	<b>registration (7)</b> 11:14,15;16:17,18, 19:24;5,21	<b>request (1)</b> 44:15	<b>rigorously (1)</b> 55:2	<b>saw (4)</b> 28:20;29:2;35:2,12
<b>ratios (1)</b> 54:14	<b>regulate (3)</b> 15:18;28:21;42:10	<b>require (2)</b> 32:3;49:3	<b>Ring (3)</b> 5:5,22;26:23	<b>saying (2)</b> 30:21;33:16
<b>raw (1)</b> 20:20	<b>regulated (2)</b> 29:2;35:3	<b>required (6)</b> 9:15;35:8;36:7; 42:8,9;45:24	<b>rise (2)</b> 55:11,15	<b>school (1)</b> 52:10
<b>reach (2)</b> 57:8;60:15	<b>regulation (5)</b> 8:12;20:15,16,18; 29:13	<b>requirements (26)</b> 4:21,21;21:17; 25:14,17;29:8;30:9, 17;35:6,13,17,22; 36:3,6,21;42:3,6,11, 12,12,16;43:1,4; 45:13,16;47:16	<b>rising (1)</b> 55:16	<b>science (2)</b> 53:11,12
<b>read (1)</b> 44:17	<b>regulations (12)</b> 10:18;12:22;13:1; 20:12,19;27:25; 28:13,15;30:11;31:8; 35:7;48:16	<b>Research (12)</b> 7:16;9:3,8,10,15; 11:3,7,10,11,24; 16:13,13	<b>risk (2)</b> 55:16;59:19	<b>Sciences (2)</b> 50:25;52:14
<b>readily (3)</b> 46:10;47:21;54:9	<b>regulator (3)</b> 19:1;21:1;42:18	<b>residual (2)</b> 21:24;25:6	<b>rigorously (1)</b> 55:2	<b>scientists (2)</b> 31:13;54:12
<b>ready (3)</b> 22:25;23:9;54:15	<b>regulators (2)</b> 44:14;48:14	<b>residue (1)</b> 25:7	<b>road (1)</b> 58:9	<b>scope (1)</b> 50:9
<b>really (12)</b> 6:14;31:3,19;34:6; 44:18,19;47:20; 53:10;58:13,24;60:7, 7	<b>regulatory (6)</b> 13:2;15:12,15,17; 59:11,13	<b>Resources (6)</b> 3:6;4:6;5:8;6:10, 14;13:7	<b>room (1)</b> 33:15	<b>season (1)</b> 17:20
<b>realm (1)</b> 55:12	<b>reiterate (1)</b> 43:7	<b>respect (3)</b> 9:24;22:11;37:13	<b>row (1)</b> 19:9	<b>second (3)</b> 11:3,7;22:22
<b>reason (1)</b> 20:25	<b>related (9)</b> 7:18;8:17;9:5; 11:20;13:3,24,25; 18:4;56:2	<b>respectful (1)</b> 27:9	<b>rowing (1)</b> 59:2,2,22	<b>secretaries (4)</b> 4:13;13:6;17:10; 37:24
<b>receive (2)</b> 8:11;12:19	<b>relatively (1)</b> 44:8	<b>respective (2)</b> 8:9,17	<b>Ruff (1)</b> 16:5	<b>Secretary (15)</b> 3:5;4:4,5;5:4,6,7, 15,20,21;6:14;26:23, 23;58:3;59:25,25
<b>receiving (1)</b> 17:18	<b>relevant (1)</b> 20:15	<b>respond (1)</b> 16:4	<b>rule (10)</b> 38:1,2,5;41:6,11; 53:2,6,10,12,24	<b>section (3)</b> 26:12;31:11;40:3
<b>recently (1)</b> 32:24	<b>reliability (1)</b> 45:6	<b>responded (2)</b> 9:5;11:24	<b>rules (1)</b> 58:9	<b>sector (1)</b> 36:18
<b>reciprocity (4)</b> 4:21;48:9,12;49:2	<b>rely (1)</b> 54:23	<b>rest (1)</b> 41:25	<b>ruling (2)</b> 37:16;38:8	<b>security (1)</b> 10:19
<b>recognized (1)</b> 18:17	<b>remarks (2)</b> 5:10;60:1	<b>restricted (1)</b> 12:11	<b>run (1)</b> 30:5	<b>seed (4)</b> 18:22,23,23;55:24
<b>recommendations (4)</b> 6:24;37:18,22; 60:13	<b>removed (1)</b>	<b>restrictive (3)</b> 31:14,19;38:13	<b>runs (1)</b> 55:4	<b>seedling (1)</b> 56:21
<b>recommended (2)</b> 23:23;26:2		<b>result (2)</b>		<b>seeing (1)</b> 8:12
<b>recommending (1)</b> 10:7			<b>S</b>	<b>seek (1)</b> 4:19
<b>record (1)</b> 48:25			<b>safe (2)</b> 18:17;59:18	<b>select (1)</b> 57:1
<b>redundant (1)</b>			<b>safety (16)</b>	<b>selections (1)</b>

56:21 sells (1) 16:21 <b>Senator (1)</b> 16:5 <b>Senior (1)</b> 2:6 <b>sense (1)</b> 48:14 <b>sent (2)</b> 33:25;34:1 <b>separate (1)</b> 23:15 <b>separately (1)</b> 23:14 <b>serial (1)</b> 25:20 <b>serious (1)</b> 7:2 <b>seriously (1)</b> 53:23 <b>serve (1)</b> 3:9 <b>serves (1)</b> 4:12 <b>service (1)</b> 22:15 <b>Services (8)</b> 2:4,7;7:15;9:10; 20:11,13;58:3,18 <b>servicing (5)</b> 35:15;36:22,23; 40:14,22 <b>session (3)</b> 11:2;13:14;16:7 <b>set (3)</b> 21:1;52:6;56:3 <b>Seth (10)</b> 32:19,20;38:16; 40:12;43:22;44:3; 46:4,6;49:19;54:7 <b>severely (1)</b> 31:22 <b>shall (2)</b> 21:20;25:10 <b>share (1)</b> 60:8 <b>sheet (3)</b> 5:1;26:14;27:11 <b>shelf (3)</b> 37:2;47:22,24 <b>shellfish (1)</b> 59:14 <b>shift (1)</b> 14:8 <b>shifted (1)</b> 14:14 <b>shipment (3)</b> 50:18;51:10,14 <b>shipments (1)</b> 51:22 <b>shorthand (1)</b> 29:24	<b>show (1)</b> 44:22 <b>showed (2)</b> 33:21;34:2 <b>showing (1)</b> 7:8 <b>Shreve (3)</b> 57:24,24;59:1 <b>side (1)</b> 54:23 <b>sign (5)</b> 5:2;27:12,13;34:24; 57:20 <b>signature (2)</b> 16:1,2 <b>signed (5)</b> 15:5;16:10,10; 17:12;27:18 <b>significant (2)</b> 13:13;14:8 <b>significantly (1)</b> 11:19 <b>sign-in (3)</b> 5:1;26:14;27:11 <b>similar (4)</b> 8:4;25:18;31:25; 58:17 <b>sit (1)</b> 40:7 <b>site (1)</b> 23:18 <b>sits (1)</b> 47:24 <b>sixty (1)</b> 23:9 <b>size (1)</b> 36:22 <b>slated (1)</b> 22:25 <b>sleep (1)</b> 46:9 <b>slightly (1)</b> 8:5 <b>small (1)</b> 29:25 <b>soil (1)</b> 33:10 <b>sold (3)</b> 20:7;49:3;58:20 <b>solids (1)</b> 54:13 <b>solution (1)</b> 51:4 <b>solvents (2)</b> 21:24;25:7 <b>somebody (1)</b> 45:4 <b>sort (1)</b> 38:11 <b>sound (2)</b> 53:11,12 <b>source (6)</b> 18:10,13,24;34:4;	48:20;51:6 <b>speak (13)</b> 5:2,7;26:13,15; 34:24,24;42:5,5;46:3; 47:16;49:25;51:24; 57:20 <b>speaking (4)</b> 6:1;50:16;59:2; 60:3 <b>specific (16)</b> 8:12;18:11;21:22; 25:15;27:19;28:12, 16,17,22,22;29:4; 30:13;31:1;34:25; 35:13,19 <b>specifically (9)</b> 7:19;13:22;14:19, 23;17:4;27:23;28:4; 30:19;35:2 <b>spectrum (2)</b> 20:23;47:6 <b>stability (4)</b> 25:12;36:25;43:8, 10 <b>stakeholder (1)</b> 4:12 <b>stand (1)</b> 29:19 <b>standard (4)</b> 32:8;34:11;58:8; 59:17 <b>standards (27)</b> 3:6;4:2,7,17;13:9, 19;17:10;21:22;25:5; 26:20;28:1,4,12,25; 29:5,14;31:7,13;32:3, 25;33:8,12;34:20; 45:20;49:4;57:22; 58:5 <b>start (6)</b> 19:12;20:1;32:21; 34:16;49:23;56:23 <b>started (2)</b> 3:3;14:11 <b>state (18)</b> 4:23;10:1;15:16,18, 23;19:3;21:20;30:20; 32:23;38:25;44:1; 48:10,13,15,17;51:21; 56:3;58:15 <b>statement (4)</b> 35:9,16,19;38:24 <b>statements (1)</b> 25:25 <b>states (13)</b> 8:13;15:14;23:14; 27:24;28:3,25;29:4,8, 9;30:16;35:3;42:9; 48:12 <b>statically (1)</b> 53:9 <b>statistically (1)</b> 53:13	<b>stays (1)</b> 55:20 <b>still (3)</b> 7:6;49:6;55:3 <b>stock (1)</b> 41:8 <b>storage (1)</b> 26:2 <b>strain (1)</b> 25:21 <b>strainings (1)</b> 56:20 <b>strains (1)</b> 56:16 <b>strengthening (1)</b> 58:22 <b>strongly (2)</b> 38:11;42:1 <b>study (2)</b> 53:7,8 <b>subject (1)</b> 30:6 <b>submit (1)</b> 15:16 <b>submitted (2)</b> 17:19;58:15 <b>substance (2)</b> 18:5,7 <b>substances (4)</b> 15:11;25:1;28:6,17 <b>suggest (1)</b> 31:24 <b>suitable (2)</b> 33:10;34:13 <b>sum (5)</b> 39:11,15;47:21; 48:3,6 <b>summation (1)</b> 41:25 <b>supervision (1)</b> 23:20 <b>Supplement (1)</b> 39:3 <b>supplements (1)</b> 24:16 <b>support (1)</b> 52:1 <b>sure (7)</b> 5:2;6:21;33:25; 40:5;47:18;56:14; 58:21 <b>surrounding (1)</b> 13:16 <b>symptom (1)</b> 12:9 <b>system (1)</b> 31:22	<b>talked (1)</b> 30:5 <b>talking (8)</b> 3:22;33:22;45:12; 46:17;47:19,20;51:2; 52:24 <b>Technical (1)</b> 32:1 <b>technicians (1)</b> 31:12 <b>tells (1)</b> 51:13 <b>temperatures (1)</b> 55:9 <b>ten (3)</b> 23:7,11;32:5 <b>tend (2)</b> 49:12;53:22 <b>term (3)</b> 17:6;56:24,25 <b>terms (6)</b> 8:20;24:7;45:3,6; 46:25;48:1 <b>terpene (1)</b> 25:9 <b>terpenes (2)</b> 47:12;51:23 <b>test (18)</b> 30:14,22;41:9; 42:20,20;50:17,18,20, 22;51:6,7,9;52:14; 54:9,15,22,22,22 <b>tested (6)</b> 25:3;32:24;34:12; 44:21;45:15;55:24 <b>testers (1)</b> 30:21 <b>testing (38)</b> 4:21;25:12;30:2,6, 8,9,17;31:4;32:2,8,9; 36:11,17;40:21;41:5, 17;42:3,8,11,12,14, 22,25;43:4,8,10,23, 24;44:7,8,17;45:5,12; 47:16;54:24;55:2,12, 21 <b>tests (1)</b> 56:3 <b>tetrahydrocannabinoid (1)</b> 12:12 <b>tetrahydrocannabinol (2)</b> 24:8,11 <b>Thanks (4)</b> 6:11;27:20;43:16; 60:16 <b>THC (44)</b> 4:8;8:24;12:12; 13:10;16:25;21:21; 24:14;35:16;36:8,14, 15;39:11,11,12,15,19, 24;40:3,18;41:14,20; 44:21,23;45:3,14,17, 22,22;46:22,22;47:20,
<b>T</b>				
<b>talk (4)</b> 40:9;43:22;53:25; 58:7				

21,23;48:1,4;50:21; 51:7,8,10;52:20; 54:14;55:10,11;57:10 <b>THCA (24)</b> 9:21;10:1,6;12:20; 24:9;36:9,14;39:11, 15;40:18;41:14; 45:14,19;46:22,23; 47:20,21,23,24;48:1; 55:11,16;56:4;57:10 <b>thinking (1)</b> 53:17 <b>third (1)</b> 16:18 <b>Thirdly (1)</b> 12:15 <b>thought (1)</b> 55:25 <b>thoughts (1)</b> 60:8 <b>thousand (7)</b> 23:7,9,11;31:17; 32:4,5;51:20 <b>threatened (1)</b> 52:7 <b>three (4)</b> 14:1;18:20;20:22; 22:17 <b>threshold (2)</b> 40:21;50:22 <b>Throughout (2)</b> 8:19;60:9 <b>timeline (1)</b> 8:16 <b>timing (1)</b> 16:3 <b>tincture (1)</b> 20:1 <b>today (18)</b> 3:10,13,14;4:16,19; 5:3,19;6:11,15,21; 13:18;15:2;20:16; 26:13;27:3;49:23; 59:5;60:5 <b>Today's (3)</b> 4:1;26:12;28:2 <b>Tom (10)</b> 32:16,17;38:16; 43:19;46:13;47:17, 19;49:16;52:19;54:4 <b>took (1)</b> 28:3 <b>top (1)</b> 19:9 <b>topic (2)</b> 32:14;44:2 <b>topics (1)</b> 27:1 <b>total (9)</b> 29:9;31:15;32:4,6; 36:7,8,15;41:20; 55:11 <b>towards (1)</b>	14:15 <b>toxins (1)</b> 28:21 <b>traces (2)</b> 33:21,24 <b>transforms (1)</b> 36:14 <b>treat (2)</b> 10:2;21:5 <b>treatment (3)</b> 10:22;12:8;38:23 <b>trichomes (1)</b> 14:24 <b>triple (1)</b> 55:25 <b>trouble (1)</b> 39:18 <b>trucked (1)</b> 51:22 <b>true (2)</b> 39:13;54:25 <b>try (1)</b> 39:23 <b>trying (2)</b> 39:18;54:18 <b>turn (2)</b> 26:4;27:15 <b>two (6)</b> 8:22;24:7,25;38:20; 46:12;48:6 <b>Tylenol (1)</b> 46:24 <b>type (1)</b> 58:8 <b>types (2)</b> 24:16;25:17	11:10 <b>unlike (1)</b> 23:13 <b>unnecessary (1)</b> 44:8 <b>up (14)</b> 10:16;22:14;25:11; 27:18;33:4;34:24; 37:13;39:21,24; 44:22,25;47:18; 49:24;57:20 <b>USDA (2)</b> 52:16;58:16 <b>use (9)</b> 4:13;8:20;10:7; 23:23;25:22;26:1; 37:3;52:15;56:13 <b>used (2)</b> 14:25;59:16 <b>uses (3)</b> 3:25;46:17;47:9 <b>using (2)</b> 33:13;41:17	<b>vine (1)</b> 39:16 <b>Virginia's (1)</b> 5:25 <b>Virginia (41)</b> 2:3,6,12;3:11,4;3; 8:2;9:4;10:12,17; 11:17,18;16:15; 17:21;18:2;19:2;21:2; 23:12;26:9;29:23; 31:7,8;32:23;33:10, 14;34:17;37:10; 38:18;49:2,3,4,8; 50:12;55:17;56:10, 18;57:1,13,25;59:3,8, 15 <b>Virginians (2)</b> 11:6,9 <b>Virginia's (9)</b> 5:11;7:19;9:6,8; 11:23;16:4,12,23; 20:11 <b>vulnerable (1)</b> 49:5	22:19 <b>wide (1)</b> 47:6 <b>Williams (12)</b> 2:6;5:13;7:13,14; 8:7;11:1;13:3;27:21; 35:1;42:7;43:25; 48:11 <b>wine (1)</b> 56:8 <b>wish (8)</b> 5:2;26:13,15;29:17; 32:11;36:2;49:25; 50:2 <b>wishes (7)</b> 27:12;34:23,24; 42:5;46:3;47:15; 57:21 <b>within (4)</b> 14:24;24:11;37:3; 45:15 <b>without (2)</b> 37:5;39:19 <b>words (1)</b> 50:20 <b>work (2)</b> 40:14;60:12 <b>worked (1)</b> 54:12 <b>working (4)</b> 13:1;50:25;52:3,16 <b>works (1)</b> 46:13 <b>written (6)</b> 9:20;10:6,22;12:7; 23:23;24:4 <b>wrong (2)</b> 40:6,7
	<b>U</b>	<b>V</b>	<b>W</b>	<b>Y</b>
	<b>ultimately (1)</b> 19:9 <b>undecided (1)</b> 49:7 <b>under (20)</b> 4:22;11:10;15:22; 16:23;19:1,22;20:14, 20;21:9;22:24;23:19; 24:14;26:25;32:25; 33:12;48:9,16;55:3,3, 24 <b>understood (1)</b> 46:11 <b>undertaken (1)</b> 7:7 <b>underway (1)</b> 37:14 <b>unduly (2)</b> 31:13,19 <b>uniform (1)</b> 36:19 <b>Units (1)</b> 31:17 <b>Universities (1)</b>	<b>VA (5)</b> 29:24;36:5,20;43:3; 48:23 <b>valid (1)</b> 33:3 <b>validatable (2)</b> 53:9,13 <b>validate (1)</b> 54:19 <b>validated (1)</b> 25:11 <b>vape (1)</b> 52:9 <b>variability (1)</b> 56:14 <b>varied (1)</b> 44:1 <b>varieties (4)</b> 14:2,9,13,15 <b>variety (3)</b> 14:4,6,25 <b>various (2)</b> 24:16;28:12 <b>VDACS (17)</b> 3:8;5:13;6:6,20; 7:18;9:16;11:10; 13:25;17:13;18:4; 19:2;30:11,23;31:9; 36:11;53:15;59:12 <b>versus (3)</b> 40:17,18;56:6 <b>vertical (1)</b> 23:13 <b>viability (1)</b> 49:8 <b>view (1)</b> 45:13	<b>wait (4)</b> 20:25;21:2;55:10, 14 <b>watched (1)</b> 3:21 <b>watching (1)</b> 3:18 <b>water (1)</b> 43:11 <b>way (3)</b> 36:16;51:19;55:20 <b>wear (2)</b> 6:15,17 <b>weather (1)</b> 56:2 <b>week (2)</b> 55:6,6 <b>weight (1)</b> 35:9 <b>Welcome (3)</b> 3:4,13;54:4 <b>wellness (1)</b> 15:1 <b>weren't (1)</b> 11:9 <b>wet (3)</b> 55:22,24;56:7 <b>wheat (1)</b> 59:14 <b>whereas (2)</b> 14:5;46:9 <b>whole (1)</b> 55:12 <b>wholesale (1)</b> 12:23 <b>widdle (1)</b>	<b>year (6)</b> 30:18;43:9;53:14; 54:18;55:22;56:10 <b>years (4)</b> 3:22;7:20;14:14; 53:7 <b>yeast (2)</b> 29:9;32:6
				<b>0</b>
				<b>0.3 (2)</b> 50:23;51:12 <b>001 (1)</b> 40:22 <b>01 (2)</b> 40:21;44:21
				<b>1</b>
				<b>1 (2)</b> 37:23;41:18

<b>1,002 (1)</b> 17:14				
<b>10 (2)</b> 12:12;39:22	<b>5</b>			
<b>10th (1)</b> 34:3	<b>5 (6)</b> 7:20;10:16;22:14, 20,23;24:13			
<b>1111 (1)</b> 31:11	<b>51 (1)</b> 22:18			
<b>12 (1)</b> 39:22	<b>6</b>			
<b>14th (1)</b> 30:18	<b>6 (2)</b> 43:8;57:6			
<b>1st (4)</b> 4:11;26:24;38:5; 60:11	<b>653 (1)</b> 4:3 <b>654 (1)</b> 4:3 <b>66 (1)</b> 17:15			
<b>2</b>				
<b>2 (2)</b> 27:7;55:4	<b>7</b>			
<b>2000 (1)</b> 17:20	<b>7 (1)</b> 39:20			
<b>2002 (1)</b> 17:14	<b>8</b>			
<b>2014 (3)</b> 9:1,6;14:7	<b>8 (1)</b> 47:5			
<b>2015 (5)</b> 9:4,13,17;10:3,9	<b>9</b>			
<b>2016 (1)</b> 10:13	<b>9 (1)</b> 45:22			
<b>2017 (1)</b> 10:15				
<b>2018 (9)</b> 10:20;11:2,12,19; 15:4,6,9;16:3;59:6				
<b>2019 (8)</b> 4:3,11;11:18;12:4; 13:3;16:5,6;23:1				
<b>21st (2)</b> 16:11,15				
<b>2269 (1)</b> 34:2				
<b>3</b>				
<b>3 (24)</b> 4:8;8:24;13:10; 16:25;21:21;27:7; 39:15,19,24;41:9,13, 15,20,23;53:2,6,10, 12,24;54:8;55:1,4; 57:2,5				
<b>3:20 (1)</b> 60:19				
<b>30 (1)</b> 34:4				
<b>30th (1)</b> 17:13				
<b>4</b>				
<b>4 (1)</b> 41:20				

## Appendix Two

Gram (g)	1 ppm = 1 ug/g
Kilogram (kg)	1 ppb = 1 ug/kg
Microgram (ug)	1 ppb = 0.001 ug/g
Part per million (ppm)	
Part per billion (ppb)	
Colony Forming Unit (CFU)	

**Table 1**

Mycotoxins					
	Aflatoxin B1	Aflatoxin B2	Aflatoxin G1	Aflatoxin G2	Ochratoxin A
VA Board of Pharmacy	<20 ug/kg	<20 ug/kg	<20 ug/kg	<20 ug/kg	<20 ug/kg
Florida	20 ppb	20 ppb	20 ppb	20 ppb	20 ppb
Massachusetts	<20 ug/kg	<20 ug/kg	<20 ug/kg	<20 ug/kg	<20 ug/kg

**Table 2**

Heavy Metals				
	Arsenic	Cadmium	Lead	Mercury
VA Board of Pharmacy	<10 ppm	<4.1 ppm	<10 ppm	<2 ppm
Florida	1.5 ug/g	0.5 ug/g	0.5 ug/g	3.0 ug/g
Massachusetts	Max 1500 ug/kg [1.5 ppm]	Max 500 ug/kg [0.5 ppm]	Max 1000 ug/kg [1 ppm]	Max 1500 ug/kg [1.5 ppm]

**Table 3**

	Microbiologicals	Residual Solvents
VA Board of Pharmacy	Section 1111 of the US Pharmacopeia	American Herbal Pharmacopia for Cannabis Inflorescence
Florida	E.coli: none present	US Pharmacopeia
	Listeria: none present	
	Salmonella: none present	
Massachusetts	Aerobic Bacteria: 10 <sup>4</sup> CFU/g	Appears to be based on US Pharmacopeia
	Total Yeast and Mold: 10 <sup>3</sup> CFU/g	
	Total Coliforms: 10 <sup>2</sup> CFU/g	
	Bile-tolerant Gram-neg Bact: 10 <sup>2</sup> CFU/g	
	E.coli and Salmonella: Not detected in 1 g	



