Labs Technical Advisory Committee

July 2, 2015 Meeting Summary and Recommendations

Committee Attendees: Ric Cuchetto, Rowshan Reordan, Jeremy Sackett Bethany Sherman

Absences: Bear Kyle

Other Attendees: Chris Lyons (RAC Chairperson), Gary Ward (ORELAP)

OLCC Staff Representatives: Danica Hibpshman, Amanda Borup, Steve Marks, Will Higlin

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The Labs Technical Advisory Committee met on July 2, 2015 to discuss mandatory testing, acceptable results, sample and batch sizes, and retesting of cannabis. The following is a summary of that meeting and the committee's rule recommendations on those topics. For purposes of this and future summaries and recommendations, these phrases are defined as follows:

- **"*Believes,*" or "*agrees*":** no member of the committee voiced a conflicting opinion or approach.
- **"*Generally agrees*"**: some members of the committee voiced a differing sentiment than this prevailing opinion or approach.

1. Mandatory Testing

A. Flower and leaf material

The labs committee agrees and recommends that the following tests of flower and leaf material be mandatory:

- Cannabinoid Panel (potency). The committee recommends that a cannabinoid panel include results for 1) THC, 2) THC-A, 3) CBD, 4) CBD-A, and 5) CBN. The committee agrees that the current practice of representing cannabinoid potency levels as single percentages is flawed, and recommends that potency be reported as a range of percentages or in categories instead (discussed in more detail below at Section 5.F).

- Water Activity. The committee recommends that testing for water activity be mandatory, as the committee believes it is a cost-effective and scientifically valid approach to assess the potential for future microbiological growth.

- Moisture Content. The committee was initially split on whether testing for moisture content should be mandatory or permissive, but ultimately agrees that as a low cost test which can provide valuable information, particularly to growers, it should be required.

- Microbiological. The committee recommends moving away from requiring that cannabis be tested for total yeast and mold, as those results do not adequately identify the presence of harmful microbiological components. Instead, the committee believes that the rules should require specific tests targeted to detect known, harmful microbiological material.

First, the committee believes it may prudent to require testing for certain species of *Aspergillus* which can cause invasive fungal lung infections. Specifically, the committee recommends adopting the position of the Cannabis Safety Institute's recommendations that the following *Aspergillus* spores be tested for: 1) *A. furnigatus*; 2) *A. flavus*; 3) *A. terreus*; and 4) *A. niger*. Alternatively, because the risk of contracting lung diseases from these forms of *Aspergillus* are generally limited to those who will smoke cannabis products and are immunocompromised, the committee recommends requiring a warning on all products that will be consumed through inhalation.

Second, the committee recommends requiring a general test for *E. coli.* The committee believes the chances of infection from cannabis contaminated with *E.coli* are low, but agrees that detection of high levels is a strong indicator of a sanitation problem in the growing or processing of the product.

Third, the committee recommends requiring a test for *Salmonella*. As with *E. coli*, the committee believes that the risks of a *Salmonella* outbreak from cannabis itself are very low, but agrees that its propensity to be highly infectious even at very low doses warrants a recommendation that testing for the presence of *Salmonella* be mandatory.

- Pesticides. The committee agrees that testing for certain pesticide levels should be mandatory, but agreed to table the discussion on specific pesticide products and allowable limits until a later meeting.

- Heavy Metals. The group will have scientific research available later in July and will discuss at a future meeting date.

B. Other cannabis products: extracts, edibles, topicals and infused products

The committee agrees that rules regarding required cannabinoid potency testing should be applicable to all forms of cannabis and cannabis-infused products. The committee agrees that water activity and moisture content testing would not be necessary for products that only use cannabis or cannabis extracts/concentrates as an ingredient or component.

The committee agrees that cannabis items that were processed using solvent or alcohol-based extraction methods do not need to be tested for *E. coli* and *Salmonella*, as those processes are typically sterilizing. The committee agrees that cannabis items that were processed using natural methods (such as water, dry sifting) may need general microbiology testing, however. The committee recommends that testing for the above-listed *Aspergillus* species be applicable only to marijuana products which will be inhaled, given that the risk for *Aspergillus* fungal infection is only present when the material will be consumed in that manner.

2. Forbidden Testing Methods

The committee is reluctant to recommend that any type of testing methods be forbidden outright, but agrees that the use of thin layer chromatography and visual-only inspections for potency, pesticides or molds are not generally considered sound scientific methods. The committee agrees that it may be a good intermediate step to forbid these practices by rule, if lab accreditation is not in place. If labs are accredited and doing proficiency testing, however, the committee agrees that rules forbidding these or any other testing methods should be unnecessary.

3. Permissive Testing

The committee agrees that terpene profile analysis should not be considered mandatory because it does not provide any significant public health or safety benefit. The committee agrees, however, that terpene profiles may be of interest to some within the cannabis industry, and therefore labs should be permitted to perform terpene analyses if requested.

The committee agrees that no particular tests should be forbidden, as there may be many optional tests that customers want to have performed, and those tests could generate potentially relevant research data. The committee also recommends that the rules not deny customers outside the state tracking system the option of having their products tested by an accredited and licensed lab. The committee believes that home growers should have the same access to safety testing and processes as licensed businesses do, if they want it.

4. Samples and Batches

A. Sizes and characteristics

The committee had some debate on the proper sample size for testing flower and leaf material. The committee agrees that an appropriate sample size depends in part on the size of the batch being tested. Some members of the committee believe that batch sizes of flower or leaf material should be no more than 5 pounds, and that an appropriate testing sample would be 1 gram/pound. Other members of the committee recommend that the growers should decide what their batch sizes will be, depending on their harvest size and growing methods, and that samples of 1-2% of the batch should be required. The committee agrees, however, that sample and batch sizing should be set at levels that both the labs and producers are comfortable with. The committee agrees to receive input from the growers' technical subcommittee before making formal recommendations on flower/leaf material batch and sample sizes. The committee also agrees to discuss appropriate sample sizes for cannabis-infused products such as edibles, extracts, and concentrates at a future meeting.

The committee agrees that any sample must be randomly selected from an entire batch of product. Additionally, the committee recommends requiring that a sample be from a batch of final product, in the form it will be offered for sale to consumers. The committee believes that rules requiring testing of flowers that will be sold or used by concentrate/extract producers are not necessary, and rather those products should be subject to required testing upon completion of the extraction process, or at least prior to retail sales. The committee agrees that the market will likely dictate pre-processing testing needs, as processors may require that producers provide testing results for flower and/or leaf material prior to putting it through the extraction process. In other words, the committee believes that general quality control standards and business practices of many industry participants will likely result in the testing of materials more levels than the rules will require; and that mandated testing of cannabis products closer to the consumer sales point is more beneficial from a public safety perspective.

B. Sample collection methods

The committee agrees that sample collection for all mandatory tests should be performed by licensed labs and not by the product producers (whether the growers of flower/leaf material, or processors of extracts, edibles, concentrates or similar cannabis-infused products). If a lab is performing any optional testing, the committee agrees that a customer should be able to submit samples to the labs themselves. The committee also agrees, however, that if the results of optional testing will be reported on commercial packaging or used in a product's advertising, the product should be subject to random sampling procedures

as well. The committee recommends utilizing the National Environmental Field Activities Program (NEFAP) standards for proper cannabis sampling techniques, and that sample collection processes should be part of ORELAP's accreditation standards.

5. Acceptable Testing Results

A. Water activity

The committee believes that water activity of .65% or below is an acceptable result, and that any return higher than .65% indicates a risk for microbiological growth. The committee recommends that labs report the actual number results of water activity tests (as opposed to a "pass" or "fail" designation), but that anything over .65% be returned to the producer for further drying.

B. Moisture content

The majority of the committee recommends that the rules not have allowable limits for moisture content results, as most samples with a high moisture content will likely always have a water activity rate of greater than .65% (and consequently "fail" under that standard). The majority of the committee believes that only water activity presents a safety issue, and that moisture content is purely informational. Therefore, the majority believes that as long as both water activity and moisture content tests are performed and results reported, the moisture content alone shouldn't determine whether a sample "fails" or "passes." Some members of the committee believe that the current standard of 15% moisture content should be the maximum allowable limit, and recommend that samples with over 15% moisture content be returned to the producer with instruction to allow further drying/curing of the flower or leaf material batch.

C. *Aspergillus*

The committee is unable to make a formal recommendation regarding acceptable *Aspergillus* test returns until some additional data is gathered. The committee believes that some additional research is necessary to evaluate whether certain *Aspergillus* spores are present or absent on everything at low levels, information which will be critical in defining acceptable threshold levels. At this time the committee recommends that *Aspergillus* testing be required for the four types of spores identified above in Section 1. A., and the committee anticipates making a recommendation of acceptable results once more information is known, and will discuss it again at the committee's last meeting on October 12, 2015.

D. *Salmonella*

The committee recommends that a result of "none detected" be the allowable return on materials tested for *Salmonell*a.

E. *E. coli*

The committee recommends doing some additional looking at research before forming an assessment of acceptable *E. coli* limits, and will discuss again at the October 12, 2015 meeting.

F. Potency

The committee recommends that there be no limits on allowable cannabinoid levels, but recommends that the practice of representing THC and CBD in specific, individual percentages be forbidden. Instead, the committee recommends that a product's THC and CBD content be reflected as a range of percentages. The Committee believes that good sampling techniques are critical to evaluating THC/CBD levels, but because potency rates can vary significantly within a single plant, requiring potency reporting in a range rather than a single percentage will be an even more accurate way to provide consumers with true information about what they are purchasing and consuming. The committee discussed several approaches and could not reach consensus on a specific method for reporting THC and CBD levels, and agreed to continue discussions on this issue at a future meeting, likely on October 12, 2015.

The committee believes that the rules should require labs to report THC, THC-A and Total THC. The committee further agrees that OHA should set rules regarding acceptable confidence levels of calculating total THC should be, and that ORELAP standards should determine how that confidence level is calculated.

The committee agrees that while THC, THC-A and Total THC should be reported by the lab to the customer, however, the rules should forbid the use of THC-A values in advertising and labelling. The committee believes that a product's THC-A result is typically a higher number than the other components, and there is a tendency to report the highest number to consumers as a means to increase a product's desirability and value. The committee believe this practice is misleading and confusing to consumers, and presents a public safety issue in that a THC-A number alone is not reflective of the product's true potency. The committee further recommends that the total THC results should be reflective of the sample's cured weight.

6. <u>Retesting</u>

The committee believes that standardization and accreditation of cannabis testing labs will result in less differentiation in test results, and notes that ORELAP already has quality control requirements and procedures in place for contesting an accredited lab's results. The committee agrees that there may be times when a customer disagrees with a lab's findings, however, and wants to have a retest performed elsewhere. The committee recommends that the rules allow a customer to have their product retested, but require a certain procedure to avoid the practice of "lab shopping." First, the committee recommends that a sample be retested by a minimum of two other labs, and only if the majority of labs return acceptable, passing results should the product be allowed to move forward into the marketplace. Second, the committee recommends that the customer be forbidden from taking samples to other labs for second opinions, and rather the original lab should be responsible for sending samples to other labs. This would ensure that all three labs (or more if the customer chooses) are analyzing the same material by eliminating any avenue for a customer to select a different sample, one that may have different properties than the original. Third, the committee recommends that the customer be allowed to select the additional two or more labs that will perform the retests, as long as they are accredited per OHA/ORELAP standards.