Testimony in Support of LD 1897, LD 1840, LD 1620, LD 1820, and LD 1672 – Ought to Pass

Distinguished Chairs and Members of the Committee on Veterans and Legal Affairs,

My name is Jackson McLeod. I am a resident of Somerville, Maine, and the CEO and Co-founder of Atlantic Farms, an employee-owned company operating in both the Adult Use and Medical cannabis markets. I have a professional background in mechanical engineering and have been a medical cannabis cardholder and Caregiver since 2012.

In 2024, Atlantic Farms served 5,142 medical customers across 61,344 transactions and 4,443 Adult Use customers across 43,250 transactions. We grow seasonal greenhouse and outdoor cannabis flower using sustainable, sun-grown methods.

This experience has given me a unique, ground-level perspective on both sides of Maine's cannabis industry. As a business owner and operator, my goal is to build a successful, Maine-based cannabis company. A key part of achieving that is profitability—but overly burdensome regulations make it increasingly difficult for small businesses like mine to remain viable.

Regulation is important when it protects public health, but overregulation can have the opposite effect. In 2024, our medical cannabis business spent $5,970 on testing. Our Adult Use business—of nearly equal size—spent $42,818. This staggering disparity has not resulted in a demonstrable difference in product safety or quality for consumers.

After the Office of Cannabis Policy tested Medical and Adult Use products, a news article was published warning of "moldy weed" in the market. In that piece, the Director of the OCP cited the American Herbal Pharmacopoeia as the basis for testing thresholds for yeast and mold. Wanting to better understand the justification, I purchased the study. While it does list 10,000 CFU/g as a threshold for *immune-compromised* individuals, the very next paragraph clearly states:

> "It is important to note that microbial and fungal values do not typically represent pass or fail criteria."

It also explains that these microbes are naturally occurring and typically harmless to healthy individuals.

This reflects my own lived experience. Full-term outdoor flower—grown under the sun—often fails Adult Use testing despite having been safely consumed for generations. These rules do not appear to be about public health, but rather regulation for its own sake. Worse, they incentivize harmful remediation practices like irradiation, which degrade product quality and diminish consumer trust.

As a sun-grown producer focused on quality and affordability, I support efforts to raise or eliminate CFU/g limits. I also strongly support reforms to reduce the excessive regulatory burden on the Adult Use market. Cannabis is now Maine's largest agricultural crop. If we want Mainers to benefit from this growing industry—especially in the face of coming federal legalization—we must stop holding our local operators back.

Respectfully submitted,
Jackson McLeod
Somerville, Maine
CEO & Co-founder, Atlantic Farms

American Herbal Pharmacopoeia®

Cannabis Inflorescence
Cannabis spp.

Standards of Identity, Analysis, and Quality Control

Revision 2014

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mendations for botanical ingredients established by various national and international bodies. Tests can be performed according to standard pharmacopoeial instructions (e.g., European Pharmacopoeia, United States Pharmacopeia, among others).

Foreign Organic Matter (crude cannabis material): Not more than 5.0% of stems 3 mm or more in diameter; not more than 2.0% of other foreign matter.

Total Ash (crude cannabis material): Not more than 20.0%.

Acid-insoluble Ash (crude cannabis material): Not more than 4.0%.

Loss on Drying (crude cannabis material): Not more than 10.0% of its weight, determined on 1.000 g of the powdered drug by drying in an oven at 105 °C for 2 h (BMC 2010).

Moisture content of dry material (crude cannabis after packaging): Not more than 15% (BMC 2010).

Microbial and Fungal Limits

The presence of microbes is typical for all natural products. Unless carefully cultivated, illegal supplies may not meet the prescribed specifications. Conversely, reports in which a causal association between microbial exposure through cannabis use and infections has been established (e.g., Carod Artal 2003) appear to be rare considering the prevalence of use and exposure.

Tolerance limits for microbial and fungal contamination in cannabis and its products should be consistent with applicable state, federal, and international regulations, whenever applicable. Recommended tolerance limits for cannabis products are provided in Table 9 and were based on a review of national and international recommendations for botanical products as well as discussion with a variety of stakeholders (e.g., Washington State). Additional guidance for botanical products is provided in national and international compendia based on oral consumption of finished botanical products. Additionally, more restrictive limits may be adopted for medical use of cannabis, most notably when used by immune compromised individuals. Microbes such as *Aspergillus* spp., for example, can be transmitted through inhalation and are of specific concern in those with specific medical conditions (e.g. chronic granulamatous disease and cystic fibrosis) and when employing specific medical treatments (e.g., immunosuppressive therapies). Reducing total microbial risk may require specific microbial reduction treatment to the greatest level possible without compromising the putative medicinal activity. Appropriate methods for testing microbial loads can be found in the *Bacteriological Analytical Manual* (FDA 2013a).

It is important to note that microbial and fungal values do not typically represent pass or fail criteria. Rather they are recommended levels when plants are produced under normal circumstances and growing conditions. Individual herbs, such as mints (*Mentha* spp.), which have a high concentration of trichomes, are prone to higher levels of molds than crops with fewer trichomes. As cannabis also possesses high concentrations of trichomes, this may be a factor and recommended limits may require adjustment over time. Higher levels of molds can also occur in seasons of heavy rain without undue damage to the crop and may justify a material exceeding the proposed limits as long as there is no visible damage to the plant and other qualitative specifications are met. Limits must also be appropriately applied to the various preparations being made. Typical microbial and fungal limits may not be relavant to materials that are to

Table 9 Microbial and fungal limits recommended for orally consumed botanical products in the US (CFU/g)

	Total viable aerobic bacteria	Total yeast and mold	Total coliforms	Bile-tolerant gram-negative bacteria	*E. coli* (pathogenic strains) and *Salmonella* spp.
Unprocessed materials*	10^5	10^4	10^3	10^3	Not detected in 1 g
Processed materials*	10^5	10^4	10^3	10^3	Not detected in 1 g
CO_2 and solvent-based extracts	10^4	10^3	10^2	10^2	Not detected in 1 g

* Unprocessed materials include minimally processed crude cannabis preparations such as inflorescences, accumulated resin glands (kief), and compressed resin gland (hashish). Processed materials include various solid or liquid infused edible preparation, oils, topical preperations, and water-processed resin glands ("bubble hash"). Significant microbial contamination can occur during post-harvesting hadling.

Table 10 Pesticides commonly used in cannabis cultivation

Pesticide	Use	Residue Analytical Methods (RAM) Environmental Protection Agency (EPA)[1] or Literature[2]
Abamectin (Avermectins B1a and B1b)	Insecticide/acaricide	LC-FLD[1]; LC-MS/MS[2]
Acequinocyl	Insecticide/acaricide	LC/MS/MS[1]
Bifenazate	Acaricide	LC[1]; LC-MS/MS[2]
Bifenthrin (synthetic pyrethroid)	Insecticide	GC-ECD[1]; GC-MS/MS[2]
Chlormequat chloride	Plant growth regulator (PGR)	IC, LC-MS/MS[2]
Cyfluthrin (synthetic pyrethroid)	Insecticide	LC[2] (WHO 2004); GC-MS/MS[2]
Daminozide (Alar)	Plant growth regulator (PGR)	UV Spectroscopy[1]; LC-MS/MS[2]
Etoxazole	Acaricide	GC-MS(/MS)[1]
Fenoxycarb	Insecticide	LC/UV[1]; LC-MS/MS[2]
Imazalil	Fungicide	GC-ECD[1]; LC-MS/MS[2]
Imidacloprid	Insecticide	LC-MS/MS[2]
Myclobutanil	Fungicide	GC-ECD; GC-NPD[1]; GC-MS/MS)[2]; LC-MS/MS[2]
Paclobutrazol	Plant growth regulator (PGR); fungicide	LC-MS/MS[2]
Pyrethrins*	Insecticide	GC-ECD[1]
Spinosad	Insecticide	LC-MS/MS; immunoassay[1]
Spiromesifen	Insecticide	GC-MS[1]; LC-MS/MS[2]
Spirotetramat	Insecticide	LC/LC-MS/MS[2]
Trifloxystrobin	Fungicide	GC-NPD[1]; GC-MS/MS[2]; LC-MS/MS[2]

ECD = Electron capture detector; FLD = Fluorescence detector; GC = Gas chromatography; LC = Liquid chromatography; IR = Infrared spectroscopy; MS = Mass spectrometry; NMR = Nuclear magnetic resonance; NPD = Nitrogen phosphorous detector.

* Natural pyrethrins are tolerance exempt; synthetic pyrethrins are not.

be subjected to processing, such as infusing, decocting, or extracting with heat, alcohol, or other processes that introduce a microbial reduction step prior to consumption.

Metal Limits

When grown in contaminated soil, cannabis accumulates heavy metals to the extent that it has been proposed as a candidate for bioremediation of toxic waste sites (Shi and Cai 2009). Siegel et al. (1988) measured 440 ng mercury per gram of cannabis in Hawaii, whose volcanic soil contains naturally high levels of mercury. Siegel notes that mercury is absorbed 10 times more efficiently by the lungs than by the gut. He calculated that smoking 100 g of volcanic cannabis per week could lead to mercury poisoning. The American Herbal Products Association (AHPA) provides manufacturers of herbal products with general recommendations for maximum heavy metals levels in herbal products, based on the daily product intake amount (Table 11). The most appropriate method for quantification of metals in medicinal products is an inductively coupled plasma-mass spectrometry (ICP-MS) method of the US Food and Drug Administration (FDA), which analyzes arsenic, cadmium, chromium, lead, and mercury (FDA 2011). The cannabis monograph of the Netherlands BMC (2010) considers the risk of metal contamination of cannabis grown under controlled conditions to be low.

Pesticide Limits

In the US, pesticides are regulated by the Environmental Protection Agency (EPA), which registers or licenses pesticides for use in the United States, and by individual states (usually, by that state's department of agriculture), which may regulate pesticides more stringently than EPA. Pesticide tolerances are approved on an individual or crop group basis, so that the approval of a pesticide for use on one commodity does not confer the approval of its use on another. Where no limits are specifically established for a specific crop or class of crops, the limit is zero (0), generally considered as < 0.01 ppm or 10 ppb according to analytical methods set forth in the *Pesticide Analytical Manual* (PAM; available from the US Food and Drug Administration) (FDA 2013b).

To date, there are no pesticides specifically approved for use on cannabis in North America on the federal level. However, some pesticides with tolerance exempt ingredi-

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LD 1620 ought to pass. Please see attached for my written testimony