

Outdoor Cannabis Production: A Vital Component of Canada's Cannabis Regulations

**A Brief to the Standing Committee on
Health (HESA) in response to Bill C-45**

Submitted By:

David Marcus

Dr. Jonathan Page, B.Sc., PhD

David Hyde, M.Sc., CPC

Dr. A.R. McElroy, PhD

Matthew Maurer, BA, LL.B.

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In the forward to the Final Report of the Task Force on Cannabis Legalization and Regulation, the Task Force stated “we recognize our stewardship not just of this unique plant but also of our fragile environment, our social and corporate responsibilities, and our health and humanity.” Amongst the Task Force’s six specific recommendations were:

- use licensing and production controls to encourage a diverse, competitive market that also includes small producers
- promote environmental stewardship by implementing measures such as permitting outdoor production, with appropriate security measures¹

Despite these clear directions, as of yet, there has been no indication from the federal government that outdoor production of cannabis will be part of the new cannabis regulations.

It is our firm belief that outdoor cultivation should be part of the new regulations from the outset, as it is ideally suited to encourage a “diverse, competitive market that also includes small producers” and that reasonable and appropriate security measures, outlined herein, can be established to achieve the enormous environmental benefits of outdoor production in comparison to indoor or greenhouse production.

Moreover, we believe that the timely licensing of outdoor production is the best way to rapidly ramp up supply to meet the increased demand in the short term and thus help to achieve the intended goal of “keeping profits out of the hands of organized crime.”²

Supply Considerations

Charles Sousa, Ontario’s Finance Minister, was recently quoted as saying “ultimately the biggest problem...is one of supply, so we want to make certain that, when we do proceed, there is sufficient supply to accommodate the activity because what we’re trying to do is curb the illicit use and organized crime that now exists around it.”³

Current numbers of registered medical cannabis patients are less than 200,000, yet Health Canada estimates that between four and six million Canadians will use cannabis recreationally starting in 2018. These consumers are anticipated to consume 655,000 kilograms of recreational cannabis per year, according to a report by the office of the Parliamentary Budget Officer.⁴

There is a real and recognized risk that the industry as it is currently defined won’t be able to expand quickly enough. Although Health Canada has streamlined the current process and has almost doubled the number of staff assigned to review applications for growing licenses, it typically takes anywhere from six months to three years to build a growing facility and bring it up to full production.⁵

Outdoor production, by comparison, requiring far less in the way of infrastructure, offers a rapid, decentralized means of ramping up production quickly and safely. Cannabis grows well outdoors in Canada as has been demonstrated by the success of hemp farming nationally. Hemp and drug-type cannabis are both forms of *Cannabis sativa* and in 2016 over 80,000 acres of hemp were grown across Canada, with hemp being grown in every province except in Newfoundland.⁶

As with hemp, drug-type cannabis has the potential to flourish in Canada’s strong agricultural culture that now has acquired 20 years of experience with hemp production. Moreover, it is likely that this opportunity would follow a broad geographical distribution, as has hemp, and although the potential for cross pollination means these crops cannot be grown in close proximity (i.e. less than 5km), both forms of cannabis production would be federally licensed and Canada’s vast agricultural expanse provides more than adequate opportunity for both.

Environmental Considerations

Indoor Cultivation

The hard truth of the current regulatory system is that the indoor grow operations it licenses consume an enormous amount of energy to grow a plant, that outdoors would flourish. In addition to the economic cost that this energy use entails, the energy required for indoor growing almost always leads to greenhouse gas (GHG) pollution that increases carbon emissions and by extension, global warming.

Indoor cultivation utilizes highly energy intensive processes to control environmental conditions during cultivation. Energy is used for lighting, venting, dehumidifying, heating and cooling. Lighting, in particular, directly or indirectly, is estimated to account for 80% of the electricity use of indoor growing operations.⁷

The statistics are staggering. According to a report by the Northwest Power and Conservation Council in Oregon (where recreational marijuana has been legal since 2014) an indoor grow system for only four plants consumes as much energy as 29 refrigerators.⁸ According to another report, a ninety thousand square foot warehouse that is used for growing cannabis paid for a two million dollar rooftop solar array, LED lights, and the most efficient HVAC and insulation products. Despite these investments in 'green growing' the electric bill for this facility is over \$1,000,000 USD per month.⁹

In 2014, two years after Colorado legalized marijuana, Denver's 362 marijuana grow facilities consumed more than 2% of the City's electricity usage and state-wide marijuana facilities were determined to be behind roughly half of Colorado's new power demands.¹⁰ In California, marijuana production is estimated to be responsible for about 3% of all electricity use or 9% of household use.¹¹

The carbon emissions of this energy use are likewise staggering. It has been estimated that one average kilogram of final product is associated with 4600kg of CO₂ emissions. Looked at another way, embedded in an average indoor-grown plant is the energy equivalent of 265 litres of oil. From the perspective of individual consumers, a single marijuana joint represents about 4.6 kg of CO₂ emissions, or an amount of electricity equal to running a 100-watt light bulb for 75 hours.¹²

In addition to the environmental and economic cost of the energy intensive nature of indoor cultivation, the legalization of marijuana has also placed strains on some individual utilities and local grids in US states where marijuana has been legalized.¹³

Greenhouse Cultivation

An alternative to indoor cultivation currently allowed under ACMPR is greenhouse growing. There is a growing segment of the industry trying to reduce its energy consumption and benefit from the sun as much as possible by using greenhouses. This an improvement over indoor production but most greenhouses also require lighting to supplement natural sunlight. Also, some greenhouses use a large amount of energy in heating (particularly in winter months) and cooling (summer months) and as such, may not lead to the significant reductions in energy consumption that were anticipated.¹⁴

Outdoor Cultivation

Outdoor field production of cannabis is environmentally similar to growing hemp or other nitrogen-hungry field crops such as corn. Energy inputs are very small and are restricted mostly to diesel fuel for cultivation. Fertilizer runoff and release of chemicals in the form of herbicides, fungicides, and pesticides are the other important environmental considerations, but hemp and drug-type cannabis are generally regarded as being exceptionally well suited to organic cultivation (see below) and Certified Organic hemp cultivation is a large and fast growing segment of Canadian hemp cultivation.¹⁵

In some parts of Canada, legislation exists to protect and preserve agricultural land. In British Columbia, for example, the province has recognized medical marijuana production as farm use and as such, production is allowed in areas designated as Agricultural Land Reserves (ALR).¹⁶ This decision is despite the fact that the growing occurs indoors and is more likely to result in further building intensification on agricultural land, rather than preserving the agricultural land as the laws intended. Outdoor production would easily remedy this situation.

Other Toxics

Heavy metal and toxins from lighting materials are an additional form of environmental risk from indoor cannabis cultivation. High-intensity discharge (HID) bulbs common in this industry are not recyclable and each bulb contains approximately 30 mg of mercury and other toxins. Mercury is a neurotoxin, and is recognized as extremely toxic, particularly in gaseous form. The Okanogan Cannabis Association estimates that indoor cultivation of cannabis could produce 46,000 HID bulbs each year just in Washington.¹⁷

Security Considerations

Security considerations concerning cannabis cultivation are a top priority for all jurisdictions. There is no reason for outdoor cultivation to be any less secure than indoor cultivation. Washington State has had regulations in effect governing security measures for indoor and outdoor cannabis cultivation since 2013. The four principal requirements specific to the outdoor regulations are siting/location, fencing, surveillance, and an alarm system.

Siting/Location:

“The WSLCB shall not issue a new cannabis licence if the proposed licensed business is within one thousand feet of the perimeter of the grounds of any of the following entities:

- (a) Elementary or secondary school;
- (b) Playground;
- (c) Recreation center or facility;
- (d) Child care center;
- (e) Public park;
- (f) Public transit center;
- (g) Library; or
- (h) Any game arcade (where admission is not restricted to persons age twenty-one or older).”¹⁸

Fencing:

“Outdoor production may take place in nonrigid greenhouses, other structures, or an expanse of open or cleared ground fully enclosed by a physical barrier. To obscure public view of the premises, outdoor production must be enclosed by a sight obscure wall or fence at least eight feet high. Outdoor producers must meet security requirements described in WAC **314-55-083**. An outdoor grow must be physically separated at least twenty feet from another licensed outdoor grow. Outdoor grows cannot share common walls or fences.”¹⁹

Alarm Systems:

“At a minimum, each licensed premises must have a security alarm system on all perimeter entry points and perimeter windows. Motion detectors, pressure switches, duress, panic, and hold-up alarms may also be utilized.”²⁰

Surveillance System:

“At a minimum, a licensed premises must have a complete video surveillance system with minimum camera resolution of 640 x 470 pixels... All cameras must be fixed and placement shall allow for the clear and certain identification of any person and activities in controlled areas of the licensed premises. All entrances and exits to an indoor facility shall be recorded from both indoor and outdoor, or ingress and egress vantage points. All cameras must record continuously twenty-four hours per day and at a minimum of ten frames per second [...]

(a) Controlled areas include:

(i) Any area within an indoor, greenhouse or outdoor room or area where marijuana is grown, or marijuana or marijuana waste is being moved within, processed, stored, or destroyed. Rooms or areas where marijuana or marijuana waste is never present are not considered control areas and do not require camera coverage. [...]

(iii) Twenty feet of the exterior of the perimeter of all required fencing and gates enclosing an outdoor grow operation. Any gate or other entry point that is part of the required enclosure for an outdoor growing operation must be lighted in low-light conditions. A motion detection lighting system may be employed to light the gate area in low-light conditions. [...]”²¹

These simple strategies have proven effective and are consistent with (and in fact are more onerous than) regulations governing outdoor poppy production in Australia, where 85 percent of the world's thebaine, an opium poppy extract used to make OxyContin and a family of similarly powerful prescription drugs, are grown. Tasmania's outdoor poppy acreage has tripled since the late 1990s, to nearly 75,000 acres.²²

It also appears that new regulations will allow patients to grow dozens of marijuana plants outdoors on their private land with minimal security, and it may be anticipated that many will do so. Accordingly, security considerations for commercial outdoor production need to take account of society's growing acceptance of the legitimacy of marijuana, its widespread availability, and the much reduced need for excessive security concerns.

Conclusion

The Washington Liquor Control Board (LCB) which regulates cannabis production in Washington State commissioned a study on "the environmental risks and opportunities in cannabis cultivation" in 2013. This study found that the most important environmental cost of marijuana production in the legal Washington market was likely to be "energy for indoor, and to a lesser extent, greenhouse, growing and in particular the climate effects of this energy use."²³

This report's final conclusion was that "legal, licensed outdoor growing has the lowest environmental impact. The LCB should consider allowing outdoor growing as [it] promises significant environmental advantages and lower production costs than indoor cultivation."²⁴ Based in part on these recommendations, Washington State has allowed outdoor cultivation, and not only has it not been problematic, unlike in other jurisdictions where marijuana has been legalized, it has resulted in supply more than meeting demand.²⁵

Currently, a number of cities and counties across California are working to integrate farming as part of the state's \$2 billion-a-year cannabis industry. The argument is that it just makes good sense, as farms tend to be discreet and run efficient operations that have a business-to-business sales model. It is a low-impact industry that has the potential to generate tens of millions of dollars for local communities in the form of new state and local taxes as well as offering farmers a profitable new crop.²⁶

Canada's 20 years of experience with legal, outdoor cannabis cultivation in the form of industrial hemp production has proven that cannabis can thrive outdoors across Canada. It can be grown outdoors safely and securely as has been proven in Washington state. It is a far more ecologically sustainable approach than growing indoors. Production can be ramped up quickly to ensure that there is adequate legal supply and to keep profits out of the hands of criminals. In addition, it will have a great potential to bring jobs and opportunities to diverse rural communities.

Authors

This submission is authored and supported by David Marcus, Dr. Jonathan Page, David Hyde, and Matt Maurer.

David Marcus has extensive experience in the Canadian Hemp industry. As part of his MBA at Ivey Business School, in 1995, David wrote a thesis on the economic benefits of industrial hemp for Canada. Shortly thereafter, he founded Natural Emphasis Ltd., which, in partnership with PhystoGene Resources, has undertaken a long term hemp breeding project which has resulted in the registration of three Health Canada registered hemp cultivars. David is also the Founder and President of AyA Kitchens, a Mississauga based cabinetry manufacturer that employs more than 300 people.

Jonathan Page, B.Sc., PhD, is the co-founder and CEO of the cannabis testing and biotechnology company Anandia Labs, and an Adjunct Professor in the Botany Department at the University of British Columbia. Dr. Page co-led the Canadian team that reported the first sequence of the cannabis genome and his work has helped elucidate the biochemical pathway leading to the major cannabinoids.

David Hyde, M.Sc. CPC, is recognized as Canada’s top independent security consultant. Over a 32-year career, David has advised major governments and corporations, secured some of Canada’s most iconic landmarks and built the security program for a \$19 billion global corporation with 60 million sq ft of facility assets. Over the past 4.5 years David Hyde & Associates has provided security consulting services to 165+ MMPR/ACMPR license applicants, attended 22 Pre-license Inspections with Health Canada and worked with 24 Licensed Producer sites.

A.R. McElroy, PhD, is a geneticist and plant breeder recognized by the Canadian Seed Growers’ Association. He has been involved in industrial hemp breeding since 2000, as Research Coordinator with PhytoGene Resources Inc., and has developed several hemp cultivars. He is a member of the Canadian Hemp Trade Alliance, and worked extensively with Health Canada and the CHTA on proposals to modernize the industrial hemp regulation. Dr. McElroy is a Fellow of the Canadian Society of Agronomy.

Matthew Maurer is the Chair of Minden Gross LLP’s Cannabis Law Group. Matt provides business and regulatory advice to a range of cannabis industry stakeholders including licensed producers, applicants and foreign businesses wishing to enter the Canadian market or partner with Canadian cannabis businesses.

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² Ibid.

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⁴ “Canada’s legal pot market won’t be able to meet the staggering demand if legalization happens next year: experts” Jacquie Miller, Ottawa Citizen, June 6, 2017

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⁶ Statistics, Reports and Fact Sheets on Hemp, Government of Canada, 2016.

⁷ Impact of Cannabis Production in the Pacific North West on Regional Electricity Loads, North West Power and Conservation Council. September 9, 2014.

⁸ Ibid.

⁹ “Surprising Energy Requirements of the Marijuana Industry” Roger Bezdek, et al, Public Utilities Fortnightly, March 2017, p.47.

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¹¹ “The Carbon Footprint of Indoor Cannabis Production” Dr. Evan Mills, Energy Policy 46 (2012) pp. 58–67

¹² Ibid.

¹³ SDG&E Cannabis Agriculture Energy Demand Study: Final Report (Prepared for San Diego Gas & Electric Company; Submitted by Evergreen Economics, July 2016)

¹⁴ Ibid.

¹⁵ “Grow Hemp” Canadian Hemp Trade Alliance (<http://www.hemptrade.ca/grow-hemp>)

¹⁶ “Regulating Medical Marijuana Production Facilities in the Agricultural Land Reserve” BC Ministry of Agriculture, March 2, 2015, p.2.

¹⁷ Ibid, p.18.

¹⁸ “WAC 314-55-050 (10)” Washington State Legislature, 2013

¹⁹ “WAC 314-55-075 (1 (b))” Washington State Legislature, 2013

²⁰ “WAC 314-55-083 (2)” Washington State Legislature, 2013

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²² “Shake Up on Opium Island” The New York Times, July 19, 2014

²³ “Environmental Risks and Opportunities in Cannabis Cultivation” Michael O’Hare, et al, UC Berkeley, June 28, 2013, p.2.

²⁴ Ibid, p. 23.

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²⁶ “Cannabis Farmers Seek Legal Way to Grow” Anthony Wagner and Micah Anderson, The San Diego Union-Tribune, January 11, 2017.