

# Cannabis Cultivation

## Marijuana's Environmental Impacts



Marijuana cultivation is one of the fastest-growing industries in the world with the *Wall Street Journal* predicting an 18-fold increase in annual revenue by 2030.<sup>1</sup> As of early 2020, 33 states, including Ohio, and D.C. have legalized medical marijuana, and 11 states plus D.C. have legalized recreational marijuana.

Debate continues over laws, regulations, and policies, as well as marijuana's potential health benefits and risks; however, there's another, often overlooked, issue to consider – marijuana's impact on the environment.

Cultivating cannabis, whether indoor, outdoor, or greenhouse, is like any type of growing; it affects the environment. With the cultivation of it comes the need to understand modern agricultural practices and adapt to an already fragile ecosystem in order to grow responsibly in order to maintain good stewardship of the environment.

### Energy Consumption

According to the U.S. Department of Agriculture (USDA), today's overall agriculture practices can have a negative effect on our soil, water, wetlands and wildlife, as well as contribute to global climate change and greenhouse gases.<sup>2</sup>

As a crop, marijuana is not exempt from contributing to these concerns. States with legalized marijuana are finding that the plant is both water- and electricity-intensive. For example, when compared to growing California wine grapes, marijuana is estimated to be twice as "thirsty."<sup>3</sup>

*To thrive, marijuana requires up to 6 gallons of water per plant per day.*<sup>4</sup>

While outdoor growers rely on natural sunlight, indoor growers require a wide variety of high-intensity grow lights to achieve the necessary equivalent each day. A study known as the "Carbon Footprint of Indoor Cannabis Production" found that grow-light dependent cannabis cultivation is responsible for 1% of the nation's total electricity usage.

### Carbon Footprint At-A-Glance

Marijuana's environmental effects seem to be far reaching.<sup>5</sup>

- Pesticide and chemical runoff threatens aquatic ecosystems and wildlife
- Irrigation robs people and wildlife of much-needed water
- Deforestation results in loss of wildlife habitat and forest fragmentation
- VOCs emissions contribute to smog, which is dangerous to humans
- Indoor cultivation requires 472 tons of electricity-related carbon annually

*Indoor cannabis cultivation consumes an estimated \$6 billion in electricity each year.*<sup>4</sup>

## Air Quality

Plants are known to emit volatile organic compounds or VOCs. VOCs then mix with nitrogen oxides, which are produced by outputs from cars and industry to create a pollutant known as ground-level ozone or smog. Marijuana plants are no exception to this emission. Research has confirmed that cannabis plants are rich in a potent source of VOCs known as terpenes, which is the thing that gives the marijuana plant its distinctive aroma.<sup>6</sup>

Since marijuana is still federally illegal, the government considers cannabis an illegal industry. As such, facts, figures, and findings about emissions related to cannabis are largely unknown and will likely stay that way unless and until federal funding from the EPA and other government agencies opens up. Until then, researchers believe marijuana farms do pose numerous environmental problems, including air quality. They continue to collect data from their own small studies in an effort to determine how much of a public health issue marijuana farms could be and to inform future best practices.

## The Need for Regulation

Like any industry still in its infancy, the cannabis industry will continue to go through many cycles of maturity and growth. Technological advancements and environmentally friendly growing practices are yet to be determined.

However, since cannabis cultivation and product production is expected to continue its momentum as more and more states legalize the use of marijuana, states will want to address environmental impacts as they determine local laws and regulations for this growing industry.

## About This Campaign

Because much of the public conversation surrounding marijuana has been based on anecdotes rather than science, Prevention Action Alliance and the Ohio Department of Mental Health and Addiction Services created this campaign to help people better understand the facts about marijuana and its effects.

If you found this article helpful, we encourage you to share it with others. You can also find other fact sheets about marijuana at: [preventionactionalliance.org/marijuana](http://preventionactionalliance.org/marijuana)

If you have concerns about your own use of marijuana or a loved one's, and wish to seek help, go to: [findtreatment.samhsa.gov/](http://findtreatment.samhsa.gov/)

## Contact Us

For more information on marijuana, please contact us at:  
Prevention Action Alliance  
(614) 540-9985  
[preventionactionalliance.org](http://preventionactionalliance.org)

## About Us

Prevention  
Action Alliance



Prevention Action Alliance is a 501(c)3 nonprofit located in Columbus, Ohio. We're dedicated to leading healthy communities in the prevention of substance misuse and the promotion of mental health wellness. Learn more at [preventionactionalliance.org](http://preventionactionalliance.org).

The mission of the Ohio Department of Mental Health and Addiction Services (OhioMHAS) is to provide statewide leadership on the topics of mental health and addiction prevention, treatment, and recovery. Learn more about OhioMHAS at [mha.ohio.gov](http://mha.ohio.gov).

1. [fool.com/investing/2019/10/19/5-reasons-the-marijuana-black-market-wont-go-away.aspx](http://fool.com/investing/2019/10/19/5-reasons-the-marijuana-black-market-wont-go-away.aspx)
2. [nal.usda.gov/afsic/sustainable-agriculture-definitions-and-terms#toc2](http://nal.usda.gov/afsic/sustainable-agriculture-definitions-and-terms#toc2)
3. [academic.oup.com/bioscience/article/65/8/822/240374](http://academic.oup.com/bioscience/article/65/8/822/240374)
4. [benzinga.com/news/15/03/5365956/marijuana-takes-a-toll-on-the-environment](http://benzinga.com/news/15/03/5365956/marijuana-takes-a-toll-on-the-environment)
5. [smithsonianmag.com/smart-news/cannabis-industry-not-green-you-d-think-1-180973659/](http://smithsonianmag.com/smart-news/cannabis-industry-not-green-you-d-think-1-180973659/)
6. [sciencemag.org/news/2019/01/legal-pot-farms-expand-so-do-air-pollution-worries](http://sciencemag.org/news/2019/01/legal-pot-farms-expand-so-do-air-pollution-worries)