Leading the Way for Cannabis Cultivation Sustainability, Phylos and Progressive Plant Research Develop Strategic Efficiencies for Cannabis and Hemp Greenhouse Cultivation

PRESS RELEASE FACT SHEET

With a focus on the Cannabis Industry's energy consumption, Phylos and Progressive Plant Research (PPR) partner to address sustainability concerns. Here are some facts.

Industry Facts and Figures

- According to Resource Innovation Institute and New Frontier Data’s 2018 Cannabis Energy Report:
  - Indoor grow facilities require up to 55% more energy than greenhouse, mixed light facilities.
  - Conversion to more efficient technologies, like LED lighting, decreased the average energy consumption of indoor grows by more than 20 percent between 2018 and 2020.
  - The report estimates the industry’s energy use will more than double by 2022, which is just around the corner.

- In 2015, the city of Portland, Oregon, experienced seven blackouts attributed to energy use by indoor Cannabis growers.

- A 2018 report from Denver’s Department of Public Health and Environment revealed that nearly 4% of the city’s electricity was dedicated to Cannabis production.

- The major drivers of energy consumption in cultivation are electric lighting and heating, ventilation, air conditioning and dehumidification systems serving facilities per the 2020 NCIA Impact Report.

PPR Energy Consumption Practices

- PPR reports an electricity reduction of 742,575 kWh during the Energy Trust of Oregon’s Strategic Energy Management Program (ETO) reporting period of October 1, 2020, through September 30, 2021, due to process-oriented improvements to cultivation including:
  - Converting chilled water supply from constant flow to demand-based flow by adjusting the chiller cycling controls, implementing passive cooling optimization, and increasing the chilled water setpoints without any negative impact on plant health.
  - Adjusting the existing light control system to respond to ambient light levels — lighting operates at a maximum 75% power and dim to 0% when ambient daylight levels are sufficient for plant health. PPR had previously installed Fluence VYPR 2p series of broad-spectrum white LED
lighting, which already reduced electricity consumption by 40% compared to high pressure sodium lights (1000W HPS).

- Reducing the fan speed in greenhouse air handlers from a constant 100% to as low as 50% when indoor air conditions are adequate.

- Annual energy savings of 910,505 kWh/year is expected as a result of implementing long-term agricultural sustainability practices. Per the EPA, this is equivalent to 72,607 gallons of gasoline, 1,621,663 miles driven by an average passenger car, or 1,422,552 pounds of CO$_2$ emissions.

- PPR designated an Energy Champion and team to direct strategies, maintain control points, and develop standard operating procedure documentation for ongoing optimization.

- Leveraging new innovations in Cannabis like Phylos Genetics will alleviate excessive energy use during cultivation, leveraging natural outdoor growing techniques.

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**Adjusted kWh / Plant**

![Figure 1: Adjusted kWh per plant in production (by plant group) April 25, 2020, through September 30, 2021. Download figure](#)

**Total Daily Energy Use**

![Figure 2: Total daily energy use in kWh October 1, 2019, through September 30, 2021. Download figure](#)

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### About Phylos and PPR

- PPR is a contract research organization that specializes in Cannabis and holds the first Oregon Liquor and Cannabis Commission (OLCC) Cannabis Research Certificate in the state. Through a collaboration with OLCC and the Oregon Department of Agriculture, PPR has also been approved to cultivate Cannabis (THC) and Hemp (CBD) plants under strict controls, in the same facility.

- Phylos, a modern crop science company developing advanced Cannabis and Hemp genetics, works with PPR for the cultivation of Cannabis and Hemp plants evaluated for the Phylos breeding program.

- PPR's facility has 80,000 sq. ft. of greenhouse space including sophisticated genotyping and chemotyping capabilities to evaluate plants throughout the growing cycle.
Citations: