

# New technologies for cannabis production



Innovative techniques and systems give cannabis growers tighter control of production, increase cannabinoid bio-availability, and allow producers to rapidly assess plant sex and potency. **Thomas Walker** explains.

Researchers are continually seeking new techniques to advance the production of cannabis. In this issue, I'll discuss three new approaches: Grodan's e-Gro system, nano-encapsulation and DNA sequencing.

## GRODAN'S E-GRO SYSTEM

Monitoring a large cannabis cultivation facility smoothly and accurately can be challenging, particularly when production data points don't form part of an integrated software platform.

Grodan's e-Gro system uses artificial intelligence (AI)-learning and cloud solutions to provide "real-time insights and smart recommendations based on the root zone, climate, crop and harvest data", the company explains. This ensures a comprehensive status report of the grower's facility.

AI provides growers with a set of powerful tools to monitor, assess, anticipate, react and predict

the life cycle and yield of their commercial cannabis crop.

The system thus empowers the grower to make informed decisions that optimise production and improve yield, according to the company.

Another benefit of the system is reduced waste from the use of consumables and inputs.

The e-Gro system is available on desktops, tablets and smartphones, enabling the user to access the data from any location. This ensures easy management and peace-of-mind, even far from the facility.

## DNA SEQUENCING

DNA sequencing enables cannabis producers to look into the future, so to speak. Plant gender, potency, and cannabinoid ratios can all be predicted from the second set of true leaves, which can appear as early as one week's growth.

Cannabinoid chemotype assay is particularly useful for producing plants that have a high concentration of either cannabidiol (CBD) or tetrahydrocannabinol (THC), or an equal balance between these two active ingredients.

Plant gender screening has also become commonplace in the industry of late. Male plants can be detected weeks before showing any visual signs of sex by extracting DNA from the leaflets of the plants as early as the second set of true leaves. This is particularly useful when phenotyping seeds.

## NANO-ENCAPSULATION

Most people who have consumed edible cannabis can recall overdoing it and experiencing 'green fever'.

Nano-encapsulation aims to change this by allowing for a more predictable experience.

Simply put, nano-encapsulation reduces the size of the THC molecule; this enables the THC to be absorbed more readily in the bloodstream, rather than being metabolised in the liver or stomach, which results in only 10% of the THC effects showing themselves.

## THE SYSTEM USES ARTIFICIAL INTELLIGENCE TO HELP THE GROWER MAKE INFORMED DECISIONS AND IMPROVE YIELD

THC absorption into the bloodstream can also be affected by how much of the edible cannabis was consumed and how much the user has eaten beforehand. The effect of edible cannabis can take anywhere from 45 minutes to two hours, which is the main reason so many users overdo it.

With nano-encapsulation, in contrast, the onset can be reduced to approximately 15 minutes, which lessens the chance of overdoing it.

Due to the increased absorption, nano-encapsulation produces the same desired effects from what, in effect, are lower doses.

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