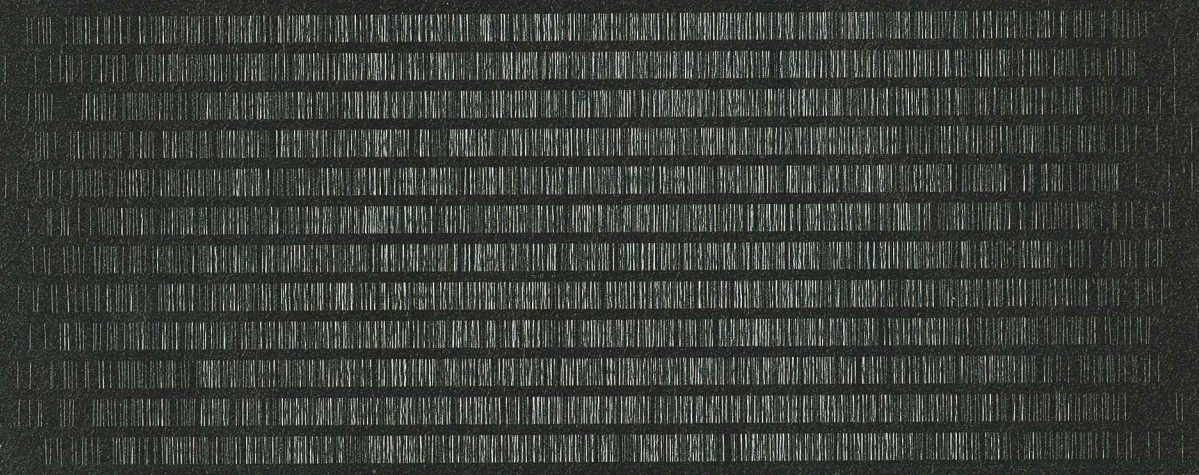
CANNABIS GENETICS:



TECH-SAVVY OR TABOO?

Enter into the world of genetic research and learn how it can predetermine traits in cannabis.

by Addison Herron-Wheeler

Genetic research is often the subject of science fiction, in which it's portrayed as being as capable of providing genetically modified food to solve world hunger or used by scientists to engineer the perfect human—for better or for worse. But it's 2021 now, and the field of genetics is very much a reality, especially in the cannabis industry.

Genetic engineering is the process by which unique agronomical traits are selected in cannabis. However, just because it's a rapidly growing field of study, it doesn't mean it's accepted across the board. Genetic engineers who manipulate cannabis traits often face scrutiny from the wider scientific community, and from the cannabis industry too. Some of these well-meaning but misguided folks think genetically modifying cannabis is a dangerous subversion of nature.

Still, that doesn't stop those who are dedicated to pursuing knowledge about how the plant works genetically and how to improve it. The implications for genetic research are huge—everything from being able to engineer plants with no THC to being able to create high-dose THC and CBD seeds and plants. Because this work is so important, there are some who are dedicated to it, no matter what. *High Times* spoke to two of the top minds in cannabis genetics research to find out what it could mean for the future of cannabis.

GENETIC DISCOVERY AND HISTORICAL RESPONSIBILITY

While the cannabis industry may be making space for genetics, the study of cannabis in general is still sometimes looked down upon in a university setting. George Weiblen, distinguished professor in plant and microbial biology and science director for the Bell Museum at the University of Minnesota, has been studying cannabis as long as he's been with the university, as far back as 2001, when cannabis research was in its infancy. At first, he wasn't taken seriously by his colleagues.

"I was the butt of a lot of pot jokes for a long time," Weiblen admits. "Now you see cannabis legislation changing, the industry emerging from the shadows. Now all of a sudden, people are interested."

These days, Weiblen is invited to participate in events all over the country (at least he was before the pandemic), and he has received a lot of positive interest in his work, including permission from the DEA to collect and study ditch weed and backing from Dr. Bronner's soap company, which initially reached out to Weiblen with concerns over the implications of genetic research—and there have been many others with those same concerns.

"I think people bring a lot of assumptions to the idea of genetic research in particular," Weiblen says. "There's concern about biotechnology, about appropriation of nature and corporatization of what is basically a medicinal herb. These things are concerns for many people in the cannabis industry. And even though this is research, not [the production of genetically modified organisms], the first time we published, we got a lot of negative feedback."

Weiblen didn't let that negativity stop him from looking into the study of genetics and how different cannabinoids are present in cannabis plants. In fact, not only has he overcome the negativity, he has also overcome many other hurdles, including a lack of funding and federal legality, and all the rules and restrictions that come with projects like gathering ditch weed from the side of the road in Minnesota in order to study naturally occurring CBD. Weiblen also wants to help on a much larger scale than just giving the industry the tools to rule out or pump up certain cannabinoids.

"We're working with some sovereign nations in Minnesota and in the Dakotas, assisting them with developing their own sovereign indigenous genetic resources as part of the transition to cleaner energy," Weiblen says. "That's the work we want to do. I was born and raised in occupied Dakota territory, and the biggest thing I could contribute from these decades of work is to really hand this hemp back to the people who my ancestors successfully booted off of their farmland. It won't happen overnight; there's lots of work to be done. But we're honored to be partnering with some of these groups and doing the work."

Genetics in cannabis might still be a very new field, but it's one with a lot of promise that extends beyond just the further monetization of the plant.

PHOTO: JONATHAN PAVLICA

PHOTO: GEORGE WEIBLEN

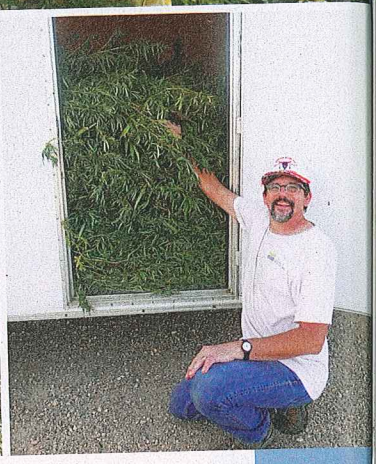


PHOTO: NICK TALMO

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—GEORGE WEIBLEN

TOP: GEORGE WEIBLEN EXAMINES A PLANT.

BOTTOM LEFT: CLEMON DABNEY IN A UNIVERSITY OF MINNESOTA VEHICLE.

BOTTOM RIGHT: A SINGLE LOAD OF CANNABIS TO BE EXAMINED.

▼ GEORGE WEIBLEN POSES WITH STUDY CO-AUTHORS CLEMON DABNEY AND JONATHAN WENGER IN A FIELD OF INDUSTRIAL HEMP USED FOR FIBER.

PHOTO: JONATHAN PAVLICA

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The genetic future of cannabis is in the hands of researchers like the distinguished professor of plant and microbiology, George Weiblen.

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