

Ensuring the survival of landrace cannabis genetics



In the bustling landscape of the cannabis industry, a silent movement is underway, one that seeks to protect the past amid the relentless wave of innovation, says **Thomas Walker**.

Landrace strains, the historical cannabis cultivars, have for generations thrived in specific regions. While modern cannabis genetics often seize the spotlight, these heritage strains are at risk, threatened by the passage of time and the pervasive trend of hybridisation.

Preserving landrace strains isn't solely rooted in nostalgia; it's a critical endeavour to safeguard genetic diversity with immense potential for the future of cannabis in agriculture and medicine. Landrace strains have evolved over generations, adapting to the unique climatic and geographic conditions of their native habitats. Whether nestled in the rocky mountains of Afghanistan or flourishing in the lush hills of Jamaica, these strains carry distinct qualities that have allowed them to flourish.

Landrace strains are not just repositories of genetic diversity but also a testament to the enduring nature of cannabis. For breeders and researchers, their distinct cannabinoid profiles, terpene compositions, and growth characteristics open doors to a realm of possibilities.

LANDRACE TYPES DWINDLING

Despite their importance, landrace strains face an array of threats. With the global expansion of cannabis cultivation and the surging popularity of hybrid strains, traditional landrace types are dwindling. The cultivation of these strains is often pushed aside as producers prioritise characteristics like high THC content or rapid flowering.

Furthermore, the very ecosystems where landrace strains have flourished for centuries are under siege due to human activity, urbanisation, and agricultural expansion.

GUARDIANS OF THE LEGACY

The preservation of landrace strains is a conscious effort driven by a need to protect genetic diversity, rather than a mere nod to sentimentality. It is this diversity that holds the key to developing cannabis varieties resilient to shifting climates, pests and diseases. It also fuels the quest for novel terpenes and cannabinoids with potential medicinal applications.

LANDRACE STRAINS' GENETIC DIVERSITY CAN ENHANCE THE RESILIENCE AND SUSTAINABILITY OF CONTEMPORARY CANNABIS FARMING

Common preservation methods include creating seed banks and collecting seeds from the strains' natural habitats, serving as genetic archives for future generations. Initiatives involving local communities in the cultivation and preservation of these strains not only support the conservation of cultural ties but also ensure the survival of these bonds.

CHALLENGES AND PROMISES

Preserving landrace strains comes with its share of challenges. In-depth knowledge of these strains' specific growth requirements is vital for successful cultivation. Moreover, legal and regulatory hurdles may pose obstacles, especially when dealing with strains from regions with strict cannabis laws.

However, the rewards are substantial. The genetic diversity that these landrace strains bring can enhance

the resilience and sustainability of contemporary cannabis farming.

By integrating landrace genetics into hybrid cultivars, breeders can introduce desirable traits such as resistance to pests, drought tolerance, and unique flavour profiles.

TECHNOLOGICAL SOLUTIONS

While landrace strains are deeply rooted in tradition and history, modern technology offers vital tools for their preservation. In the face of ongoing challenges, innovative approaches leveraging technology are being harnessed to safeguard these valuable genetic resources.

In the world of modern genomics, advanced techniques allow for the detailed characterisation of landrace strains. By mapping their genomes and conducting DNA sequencing, we gain a comprehensive understanding of their genetic make-up. This not only ensures accurate identification but also provides a blueprint for the selective breeding and reintroduction of key traits into hybrid varieties.

Cryopreservation is a cutting-edge method that involves freezing plant tissues, such as seeds or shoot tips, at extremely low temperatures. This technique effectively halts the ageing process and maintains the viability of landrace strains for an extended period.

In tandem with tissue culture, which promotes the rapid growth of plant cells under controlled conditions, these technologies enable the efficient regeneration of landrace strains.

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