Cannabis Seed Strain Types

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Abstract

The types of marijuana plants cultivated today include a broad range of genetic expressions that affect plant structure, growth habits and bud harvest quality. Examination of the cannabis strain varieties commonly grown in the United States shows a prevalence of hybrid genetics, bred from indica and sativa strains. Hybrid marijuana represents a vast portion of the marijuana sold at legal medical/recreational dispensaries.

1 Cannabis Genetic Strain Breeding

1.1 Hybridization

The crossbreeding of plants has been part of history[1] since the beginning of man. However, since the mid-20th century[2], the crossbreeding of plant species, including marijuana, has risen to become a very popular hobby across the globe. Possible explanations include the increase in means of transportation, traveling, and trade between countries[3]. As a result of such circumstances, there are presently more hybrid cannabis strains that exist than ever recorded before. Hybrid marijuana plants[4] are known to show positive traits, such as hybrid vigor[5]. Although, with hybridization comes a loss of genetic stability[6] in the resulting offspring as subsequent generations of marijuana seeds are made from the seed stock.

1.2 Inbred Strains

Before crossbreeding cannabis strains became so widespread, marijuana plants were typically inbred[7] among populations of their own genetics. An inbred stain (called IBL for inbred-line strain[8]) is a variety selectively bred by humans, while a landrace strain is an inbred strain that exists in the wild.

While some negative traits may be attributed to certain inbred cannabis strains, such as loss of vigor or hermaphrodite populations[9], there has also shown to be benefits in the genetic stability of the strain. For example, Sensi Seeds' Hindu Kush strain[10] from the Hindu Kush mountain range has shown to reproduce nearly identical plants when grown side-by side. In comparison, a hybrid strain may yield many different phenotypes that vary in growth and appearance.

1.3 The Cannabis Breeder

Not all cannabis breeders are concerned with the genetic stability of their seed stock, or may find stability in another way. Due to the growing trend of cloning and feminizing seeds, genetic stability could mean simply reproducing plants of the exact same phenotype.

A possible problem with such breeding practices is that both cloning and feminizing requires human intervention to continue, while regular seeds can reproduce by themselves[11]. In the wild this is evidenced by the numerous landrace varieties found that offer unique and resilient genetics, while also adapting to the local climate[12].

Cannabis strain breeders may consider integrating inbreeding practices, or breeding in landrace genetics to improve the stability, local adaption, and resilience of their seed stock. A prime example being the famous DJ Short's Blueberry strain[13] has been inbred for decades, leading to a very stable strain to grow.

2 Types of Marijuana Strains in Seeds

2.1 Feminized Seed Strains

Feminized seed strains[14] are made by a special process that makes female marijuana plants produce rogue male flowers, which are then used to pollinate another female plant. The seeds produced contain only female sex chromosomes[15] (XX), which upon germination results in only female plants.

The advantages of feminized seeds are shown particularly for growers who do not wish to cultivate male marijuana plants. In the United States and other regions[16] of the globe where per-number limits are placed on marijuana cultivation, feminized seeds allow the grower to know exactly how many female plants the seedlings will produce.

The main disadvantage of feminized seeds is the problematic reproduction[17] of seeds from feminized seed stock. Breeding with feminized seeds produces offspring high in hermaphrodistism. Cultivators of feminized seeds are recommended to clone the prized phenotypes instead of seed breeding.

2.2 Regular Seed Strains

Regular seed strains[18] are the main vessel of reproduction made by the cannabis plant. In general, marijuana has male and female plants. The males produce the pollen needed to impregnate the females, thus producing seeds. While marijuana is considered dioecious[19] due to the plants being primarily male or female, hermaphroditism does occur, making cannabis a "predominantly dioecious"[20] genus.

One advantage of regular seeds is the true breeding ability of the seed stock, giving growers the chance to further breed[21] a variety for themselves. Regular seeds often even reproduce themselves when left alone, and the seeds are good to use in sensimilla cultivation[22] if no hermaphrodites were present. Another advantage of regular seeds is the stability of the seed stock, which adapts to the local climate in time.

A disadvantage of regular seeds is dealing with male marijuana plants when they are not wanted. The seedlings take a few weeks to declare their

sex under most circumstances, which means the plants are given valuable soil, nutrients[23] and light when they may very well be culled once declared.

2.3 Sativa Seed Strains

Sativa seed strains[24] are made from the predominant species of in the cannabis genus, cannabis sativa. Sativa plants are typically tall-growing, large plants[25] with a narrow leaf structure. The origins of cannabis sativa[26] can be traced towards Central and Southeast Asia and have spread and naturalized to various locales around the world.

An advantage of sativa seeds for growers may be the strong vigor and tall stature that these plants get. Sativa and sativa-dominant hybrids are among the largest marijuana plants on the face of the earth, with many varieties growing over 12 ft. tall in height[27]. Another advantage of sativa strains would be the buds, which are known to produce lively, energetic effects for the user.

The main disadvantage of sativa seeds is the long growing time it takes from seed until harvest. A lengthy 12-18 week flowering time is not uncommon for certain pure sativa strains. Although not all sativa strains are long flowering, as evidenced by the naturalized South African varieties[28] that can finish in 65-75 days from bloom.

2.4 Indica Seed Strains

Indica seed strains[29] are from the species cannabis indica, the second most predominant species in the cannabis genus. Taxonomists sometimes classify[30] cannabis indica as a sub-species of cannabis sativa. Indicas are typically stout, bushy growing plants with a broad leaf structure. The origins of cannabis indica have been traced back[31] to the Himalayas and surrounding regions.

One advantage of growing indica seeds[32] is the fast flowering ability of the plants, which can be ready for harvest in as short as 6 weeks from the start of bloom. A typical indica or indica-dominant hybrid is finished at 8 weeks flowering. The buds of indica plants are considered among the most medicinal, for providing body effects and "narcotic[33]" pain relief.

A disadvantage of indica seeds could be the high susceptibility to molds, mainly Botrytis cinerea[34]. Indica strains are not accustomed to the wet and humid climates that sativa strains have endured through generations of natural reproduction.

2.5 Autoflowering Seed Strains

Autoflowering seed strains[35] are made by crossbreeding typical cannabis sativa or indica strains with cannabis ruderalis[36], a wild hemp variety that does not display photoperiodism, a trait that makes the marijuana plants grow by the changes in light cycles. Autoflowering plants can be given any amount of lighting and do not alter their life-cycle. In comparison, cannabis sativa and indica plants do not enter the flowering stage when given over 16 hours of light per day. Autoflowering strains, will flower under such conditions[37].

An advantage of growing autoflower seeds is the ability to provide the maximum amount of lighting (18-24 hours of light per day), which allows for keeping plants of all stages of growth in the same grow room area. Another advantage of autoflowering seeds is the speed by which the plants grow from seed-to-harvest. "60-day wonder[38]" plants have allowed the home grower to cultivate marijuana plants in as little as 60 days from germination.

A disadvantage of autoflowering strains is the plants cannot be cloned, due to the inability to stay in vegetative stasis. Another disadvantage is the lowered THC of autoflower varieties due to crossbreeding with non-psychoactive hemp[39].

2.6 Purple Weed Seed Strains

Purple weed seed strains[40] are specially-bred marijuana varieties that produce purple-colored buds. While many strains of cannabis will turn purple given a cold enough climate, the true purple cannabis strains make vibrant purple buds without any temperature adjustments. Purple strains are popular in the medical and legal recreational[41] marijuana dispensaries across the United States, and give a highly appealing look that makes many cultivators want to grow purple weed.

The main advantage of growing purple weed strains is the high marketing appeal that purple buds have in the cannabis community[42]. Compared to most green marijuana buds, the purple buds offer an elegant alternative that catches the eye of many consumers.

A disadvantage of growing purple cannabis strains is that not all seed stock is particularly reliable. Many purple weed strains are lacking the vigor, yield and potency that standard green buds posses. However, in recent years a number of tasty, potent and high yielding purple strains have become available to grow, for example Ken Estes' famous Grand Daddy Purple strain[43].

2.7 High Yield Seed Strains

High yield seed strains[44] are selectively-bred varieties of cannabis with a focus on pure yield from a sensimilla bud production[45] standpoint.

Advantages of growing high yield strains are in the productive harvests that yield high amounts of seedless marijuana buds. For cash croppers and growers who wish to get the most amount of buds per plant, high yield strains offer the highest yield returns[46].

Certain disadvantages of high yield strains may be in the lowered potency of some strains used to boost the production levels of otherwise flavorful, potent varieties. For example, the strain Big Bud[47] is used to increase yields in breeding practices, although the strain itself is considered low-flavor and low-potency.

2.8 Fast Flowering Seed Strains

Fast flowering seed strains[48] are varieties of marijuana that are ready to harvest at the shortest time from the onset of the flowering cycle.

The advantage of growing fast flowering strains lies with the cultivator seeking to optimize timely harvests. Growing a quick flowering cannabis variety allows the cultivator to complete more cycles of plants[49] than possible with longer flowering varieties.

A disadvantage of fast flowering strains may be in the "high effect[50]" produced by the strains, which in high THC varieties may be not as desirable for users seeking a clear, heady sativa high. Although, there are fast-flowering sativa hybrids that display such energetic effects.

2.9 Landrace Seed Strains

Landrace seed strains[51] are naturally localized or feral varieties of marijuana, typically found growing in the wild without human cultivation, but not always.

A great advantage in growing landrace strains is the genetic stability and environmental adaptation[52] of such varieties. Landrace genetics are specially adapted to the outdoor climates from which they originate.

A disadvantage to landrace strains could be the lack of selective breeding may produce undesirable phenotypes. Some landrace seed stock for example the Thai strains[53], show a high population of hermaphrodites. However it is not certain whether this is due to the change in latitude when grown in temperate climates.

2.10 Mold Resistant Seed Strains

Mold resistant seed strains[54] are landrace, hybrid and IBL cannabis varieties that show a high resilience against molds and mildews. Mold and mildew resistant marijuana typically originates from wet, tropical and sub-tropical climates where high humidity and frequent mold growth is common. The marijuana seed bank Mold Resistant Strains[55] is a resource for the best mold and mildew resistant strains that grow well outdoors[56], in greenhouses or problematic high humidity indoor grow rooms.

The advantage to growing mold resistant marijuana strains is clear to cultivators in high humidity grow environments. By selecting an appropriate mold resistant indica or sativa strain, the harvest of buds may be clear of any problematic moldy bud issues[57].

A particular disadvantage to mold resistant seed strains is not clear, as the genetics encompass a broad range[58] of marijuana strain varieties.

3 Marijuana Seed Banks

A marijuana seed bank[59] is a collector or retailer of marijuana seeds that collects, preserves and/or distributes the seed strains. The marijuana seeds are typically gathered from multiple breeders and distributed around the world via postal mail shipments. Due the the legality of cannabis seeds[60] in various countries, cannabis seed banks are allowed to operate under legal terms in parts of Europe, the United States and other countries that reform cannabis laws[61].

A wide range of online cannabis seed banks gives the consumer many options to consider[62] when purchasing marijuana seeds on the web. Cannabis seed consumers are recommended to verify the trust[63] of seedbank websites before making an order. Seedsman[64] is a prime example of a long-time trusted seed bank in the cannabis community.

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