



**GRH**

Green Rock Hemp Holdings, LLC

**Green Rock Hemp**

**360°**

*Professional solutions from seed to CBD*

**MARCH 2020**

**The Green Rock Hemp family of companies includes:**



Designs, develops, and clones genetically superior hemp genotypes



Utilizes advanced technology for large-scale seed and clone production



Produces and processes the highest quality industrial hemp



Processes and distributes high quality, FDA-grade cannabidiol (CBD) crude oil, isolate, and distillate



Provides hemp extracts for consumer health and beauty applications through its Puraura Naturals consumer brand

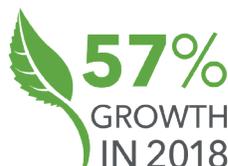
**A 360° View**

This is an exciting time to be part of the hemp industry. The passage of the 2018 Farm Bill paved the way for hemp-derived CBD products to be manufactured and sold across the entire country. Fast forward shortly over a year, and the industry is thriving. The demand for CBD products across countless industries has positioned the market to reach over \$20 billion in the next five years. With unprecedented consumer interest in the benefits of CBD, it's crucial for the hemp community to focus on building transparency and trust in our industry.

With its vertical structure, [Green Rock Hemp](#) (GRH) has an integrated, 360-degree view of the emerging hemp industry, as well as a big-picture perspective of customers' needs. "Because our companies manage all aspects of the supply chain, we have a broad perspective on various customer demands and can provide professional, integrated solutions from genome and seed development through cultivation, processing, and extraction," stated Joe Cachey, Chief Executive Officer.

The 360-degree approach helps GRH and its affiliates provide farmers, consumer goods producers, and end customers in the industrial hemp industry with not only the highest quality products and solutions, but also the best customer experience. "Our focus is on building trust and bringing professional business practices to the industry," commented Cachey.

The Green Rock Hemp family of companies is focused on solving customer challenges – from helping farmers find predictable, consistent seeds and propagation methods, to employing state-of-the-art extraction processes for the purest products. "Our goal is to build long-term relationships and provide our customers with solutions across the supply chain," Cachey concluded.



## Buying Seed? Ask these questions:

Seed producers, the critical starting point of a farmer's journey, should be able to answer these questions for complete transparency:



**Was the seed generation purchased grown in an identical manner as the generation tested?**

**Will the results show the same?**

**If there was a slight change in processes, would the results be changed?**



## Take the Risk Out of Seed Purchasing

Beginning with the 2020 growing season, Mesa Rising Hemp Farms will purchase seeds exclusively from [GeneticsCubed](#) and Red Dune Seed.

GeneticsCubed develops and clones genetically superior hemp genotypes with characteristics that promote growth and maximize CBD content, and Red Dune Seed uses advanced technology for large-scale seed and clone production.

## It's All About the Seed!

Successful, large-scale cultivation of industrial hemp requires vigilant attention to starter seed, as well as cutting-edge science. With the inaugural growing season at [Mesa Rising Hemp Farms](#) successfully completed, we learned valuable lessons that will result in improved yields in the future. The importance of genetically superior hemp seeds cannot be overstated. And seed representatives are eager to make claims that may not be obtainable in the field.

“At the beginning of our inaugural growing season, we talked with a number of seed growers and brokers in our quest for high-quality feminized seeds,” stated Julian Zhao, Director of Operations. “Many of these brokers provided guarantees of 100 percent feminization and 99 percent germination rates. They also provided Certificate of Authenticities (COAs) from third-party companies that showed great cannabidiol (CBD) numbers, paired with low tetrahydrocannabinol (THC) numbers, as well as an impressive CBD/THC ratio and sex-testing and germination test results.”

However, after taking a deep dive into seed production and what it takes to produce such a promising seed, the Green Rock team discovered that many newly emerging companies are profiting from misrepresentations, and often the COAs and test results were from previous generations of seed batches or a single outlier rather than the average.

“Once our seeds were purchased and propagation of our 1,400,000 top-of-the-line feminized seeds began, we saw a drastic drop from expectations reported by seed representatives,” Zhao continued. “We outsourced propagation to well-established greenhouse nurseries that followed our fertilizer regimen requirements, yet only 1,200,000 seeds germinated. This represents a more than 13 percent reduction from what we were initially guaranteed from seed providers and brokers.” A critical lesson learned was to be vigilant in each process and disregard claims that aren't scientifically and appropriately backed.

According to Zhao, once the seedlings became well-established in the Green River, Utah climate, the genetic variations of the plants were shocking. “Alongside our beautiful 4' to 5' plants with large colas and great trichome development, were stunted plants, a foot high with little to no resin development and minimal signs of budding,” he explained. “Many of our plants looked fantastic, but some looked sickly. While some performed well early, others took longer but became the best in the lot. In one of our fields, we discovered a wide variety of genetic traits within what was supposed to be the same genetics.”

Not only were plant genetics inconsistent, but the Mesa Rising Hemp Farms team found over 2 percent males with an average 100 male plants per acre—a number that is devastating and potentially ruinous to an untrained eye. At scale, on a farm with 325 acres planted, around 32,500 male plants had to be identified and then culled—a highly laborious and expensive task. Fortunately, we caught the infiltration of males early and the situation was remedied. “For some farms, this large number of

Working with University of California, Berkeley scientist [Dr. Thomas Azwell](#), and award-winning cannabis breeder, Arthur Adams, these seeds and clones have best-in-class genetics, resulting in seeds that help farmers get the maximum yield for their dollar.

male plants would almost guarantee female plant fertilization which in turn leads to significantly lower Phytocannabinoid levels as each plant's energy shifts toward seed development," stated Zhao.

Without dependable and predictable plants, farmers assume additional costs, decrease their projected yield, and are left wondering why their promising seed purchase took a turn for the worse. The Mesa Rising Hemp Farms team will be applying these lessons to the 2020 growing season.



The Red Mesa facility has the capability to produce the general product offerings of:

**Hemp crude oil**

**Full Spectrum distillate (entourage of cannabinoids with minimal THC)**

**Isolate (99.999% pure CBD)**

**Broad Spectrum (entourage cannabinoids and THC-Free)**

**Single Spectrum (specialty/designer cannabinoids)**

## Red Mesa Unveils State-of-the-Art Extraction Facility

Late last year, [Red Mesa Science & Refining](#) broke ground on its new, 50,000-square foot facility. Located in St. George, Utah, the facility boasts an extensive, fully customized extraction system to help meet volume requirements now and in the future. "Red Mesa is excited to bring together science and soil in building our new extraction facility," explained Danton Brown, Chief Technology Officer. "This will be the most technologically advanced and precise facility I've managed over the course of my career." Along with producing a full array of cannabinoid products (see sidebar), the facility will house a state-of-the-art cannabinoid testing lab.

Federal regulations are expected to tighten the qualifications and standards for processing hemp, and Red Mesa is anticipating and planning for the increased regulation. "We have already started working toward a cGMP and ISO 9001 certification," stated Brown. "These coveted designations will set our facility apart as being operated at the highest levels of compliance, cleanliness, and professionalism."



## Farmer/Processor Relationship is Critical for Success

While hemp farmers must consider genetics, seed purchases, irrigation, fertilization, and propagation, building a solid relationship with a reliable processor is also critically important. After a difficult hemp harvest in 2019, it became clear that there is no more useful relationship that a farmer can have than one with a reliable biomass processor – a relationship that develops over the whole planting season through communication and mutual trust. This relationship not only provides peace of mind that your hemp will get processed, but it also allows the processor to verify the source of their biomass and offer input in how it's grown and harvested. Contact [Red Mesa Science & Refining](#) to discuss your plans for 2020.

# LEGISLATIVE UPDATE

## HR 5587 Introduced in House

Representative Collin Peterson, Minnesota (D), the Chair of the U.S. House Agriculture committee has introduced new legislation ([HR 5587](#)) to revise the Federal Food, Drug and Cosmetic Act (FD&C) to allow FDA-regulated, hemp-derived CBD to be marketed in dietary supplements and as food and beverage additives. This would significantly expand market opportunities for CBD. The bill would also require a study and report from the USDA on the regulatory and market barriers for farmers engaged in hemp production.

“Industry leaders have been lobbying lawmakers for regulations that would allow the sale of hemp-derived CBD without a doctor’s prescription,” explained Joe Cachey, Chief Executive Officer, Green Rock Hemp Holdings. “This proposed legislation signals that legislators are seriously considering the action, which would change the definition of “dietary supplement” and force the U.S. Food and Drug Administration (FDA) to allow CBD to be marketed in dietary supplements.” The bill will also allow the FDA to regulate CBD that comes from hemp as a dietary supplement and remove barriers for hemp-derived products that will move the industry forward. Write to your U.S. Representative and encourage co-sponsorship of HR 5587! Or visit the [Hemp Supporter](#) website to generate a message to your local representative.

## States Keep Pilot Programs Through 2020

Agriculture officials in a number of states will continue hemp production under the 2014 pilot program instead of submitting plans that follow the newly proposed federal rules. The ongoing uncertainty, timing, and a lack of access to registered laboratories, were cited as the reasons behind this decision. The USDA did not publish the interim final rule until Oct. 31, 2019, which made it difficult for state officials to create plans that would meet federal requirements in time to implement the rules for 2020.

One key area of concern is the USDA's stringent THC testing procedures, including a 15-day pre-harvest sampling that must be delivered to laboratories registered by the U.S. Drug Enforcement Agency (DEA). Currently, a number of states have longer testing windows. In addition, very few have DEA-registered labs. Many of the proposed rules contradict current state programs, many of which were established under the 2014 Farm Bill. State officials also complain about the lack of seed-breeding guidance and no system to document hemp for interstate transportation. Officials believe many of the new rules are burdensome and may have a devastating impact on the industry.

# UPCOMING EVENTS

Representatives from Green Rock Hemp and its family of companies will be at the following conferences and exhibitions. Be sure to stop by and say hello!

[Natural Products Expo West](#)

March 3-7, Anaheim, CA

[World CBD Expo](#)

March 20-21, San Diego, CA

[Cannabis \(Cultivation & Dispensary\) Conference](#)

April 21-23, Las Vegas, NV

For more information on the Green Rock Hemp family of companies,  
please visit our [website](#) or contact [Anderson Bryant](#).



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