



Remembering German cannabis reformer Jürgen Neumeyer

Hemp TODAY

Voice of the Global Hemp Industries

HEMP 3.0

How the miracle crop can fulfill its promise



USA

THE SEARCH FOR STABILITY

As hemp hits bottom, what will the new Farm Bill bring?



Food

A MARKET READY NOW

Richard Rose on hemp's lowest hanging fruit



Building

IAN DONOHOE

A chance to mix hemp, high tech

HEMP

'COME TOGETHER'

TWO EVENTS, ONE MISSION
SHAPING THE FUTURE OF GLOBAL HEMP

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EXPERIENCE **HEMP**



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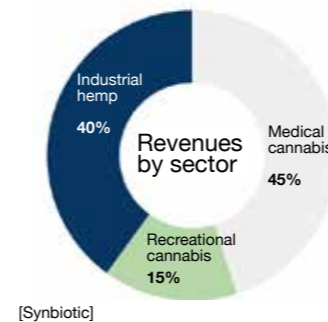
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We are in the midst of the dawn of the next great hemp and cannabis era."*

Daniel Kruse, CEO SYNBIOTIC SE, 2024

Sustainable Synergies

Leveraged operations

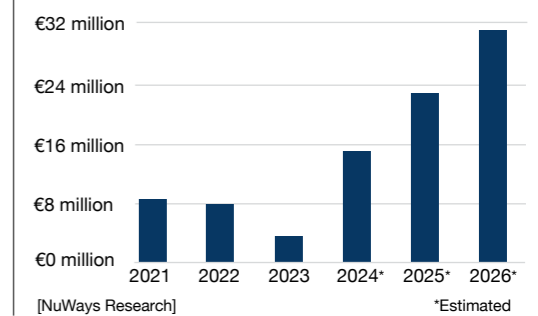


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From the Editor

Unlocking hemp's promise of a more sustainable world

As we enter the era of Hemp 3.0, the hemp industry stands at the brink of transformative global growth, driven by sustainability and innovation. The seeds of this evolution were sown in 2018 with the U.S. Farm Bill, a landmark shift that reclassified hemp, unlocking its potential beyond just CBD into a myriad of uses—from eco-friendly textiles and sustainable construction to innovative bioplastics.

Looking ahead, Hemp 3.0 envisions a future where hemp is both a powerful economic force and a vital component of green industry. Critical to this progression are ongoing efforts toward international policy harmonization, which promise to smooth regulatory inconsistencies and foster seamless global trade. Such alignment, especially around THC limits, will empower regions from Africa to Latin America to fully leverage hemp's industrial potential, attracting investments and transforming these areas into global production hubs.

Yet, challenges persist, with market oversupply and infrastructure gaps threatening stability. Success hinges on addressing these issues, alongside prioritizing research and sustainable practices. With commitment from key players, Hemp 3.0 can redefine industries, building a legacy of economic growth rooted in environmental stewardship.

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"When we embarked on development of our first jacket for the next Best Made, we turned to Tuscarora Mills in Pennsylvania for a custom fabric. The result: a selvage undyed twill (denim) woven on 19th-century Draper looms at their Red Lion PA facilities. This fabric combines 55% natural French hemp with 45% organic Texas cotton, making it the most durable, comfortable, and responsible fabric ever deployed in a Best Made garment."

Peter Buchanan-Smith
Founder, CEO & Chief Creative Officer
Best Made Co., New York, NY



High-quality American-made linen, organic cotton, and hemp fabrics

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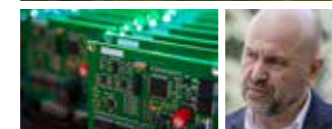
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FRONTISPIECE

Wizards & Prophets

Balancing growth and sustainability in the hemp sector

By Steve Allin

I’ve been focusing recently on how my knowledge of environmentalism and sustainability can be applied to the current state of the industrial hemp industry. My awareness of environmental issues began as a young school student, thanks to some enlightened teachers at my secondary school.

This awareness grew when I read reviews of *The Limits to Growth* report and discovered “The Whole Earth Catalog.” These two events introduced me to the idea that our lifestyle was unsustainable and provided tools to address the situation.

Wizards & Prophets

The creator of The Whole Earth Catalog, Stuart Brand, recently resurfaced in my life through a video by his Long Now Foundation. The video featured Charles C. Mann, a journalist, author, and philosopher. His three books describe how the world was in 1641, how it changed by 1643, and how humanity is trying to deal with the resulting challenges (Wizards & Prophets).

Years ago, I watched a similar TED Talk by Mann, where he explained that those seeking solutions for humanity can be divided into “Wizards” or “Prophets.”

He used two scientists as examples: Norman Borlaug, an agronomist (the “Wizard”), believed science could solve anything and developed rust-resistant wheat, a pillar of the Green Revolution. William Vogt, an ecologist (the “Prophet”), warned that overreliance on technology would push the planet’s limits, with damaging effects.

Both men thought they were protecting nature and improving life, and for a long time, both had valid arguments. However, as we gather more data on our environment, there’s greater urgency in addressing this emergency.

Practical solutions

So, how do we compare the “Wizards” and “Prophets” of the hemp industry? The business world loves the term “growth,” but I’m sure I’m not the only one questioning an economic system so dependent on it. Many promoting hemp want the sector to grow, but how can we ensure we’re not ignoring future problems while providing practical global solutions?

Hemp has been championed as an environmental tool since “The Emperor Wears No Clothes” by Jack Herer. Unfortunately, some people overstate hemp’s benefits – like claiming no fertilizers are required or exaggerating production volumes. The facts are more complex. Environmental benefits depend on how hemp is grown and harvested, and what companion crops or rotation systems are used.

Carbon storage in soil and materials is still being quantified, and climate change affects agricultural systems. Sowing times are shifting, and field retting is riskier now than in previous centuries.

At this year’s European Industrial Hemp Association event in Prague, large-scale concepts and market expansion dominated.

Some presentations balanced wizardry and prophecy, but two stood out as distinct approaches.

Small-scale, large-scale

Maciej Kowalski of Poland’s Kombinat Konopny exemplified the Prophet approach. Starting small, he uses stand retting during harsh Polish winters to process hemp fibers with old local equipment. His community-based project proves the potential for textile production, all within a former horticultural combine. Kombinat Konopny dreams big but is grounded in careful, small-scale steps.

On the Wizard side, Michael Bieder’s company Fibamax has ambitious plans for 250,000 hectares of hemp cultivation, yielding 3 million tons of crop and €1.2 billion in revenue by 2035. Fibamax’s high-tech vision for processing hemp raises concerns. Low

prices for hemp as a substitute for other biomass or cellulose materials—like timber or maize, which are subsidized—may pose challenges, as hemp lacks similar subsidies.

This echoes the argument around green energy: the transition from fossil fuels would be faster if oil and gas subsidies were redirected to green energy. Large-scale processes require significant energy, and Fibamax’s motto, “Creative Minds With No Limits,” raises a red flag. Anyone with a realistic view of the future knows there are limits.

I draw a parallel between conventional and organic farming and the growth of a business. Rapidly investing in large-scale processes risks becoming dependent on artificial inputs – like chemical farming. In contrast, growing a small business from the ground up is harder but more sustainable when rooted in the community.

This doesn’t mean I favor one approach over the other. Both will be needed, as farming techniques and geography vary widely around the world. One size will not fit all. We’ll need solutions for both small fields and large farms in the Americas and Europe.

Net zero challenge

The international effort to sequester carbon will require every available tool. Achieving Net Zero or better will be challenging, but lower carbon lifestyles can play a huge role in national reductions. Energy-efficient homes built or retrofitted with hemp materials offer significant savings and health benefits, creating lower-impact life choices.

This is my Wizard mind speaking. My Prophet mind reminds me, however, that many solutions we propose are often used to justify harmful technological expansion. For example, Ryanair’s CEO boasted about new, greener aircraft while simultaneously seeking to double flights from Dublin airport – negating any environmental benefits. This is the Jevons Paradox. Net Zero housing solutions should reduce overall emissions, not excuse greater volumes of consumption.

Steve Allin is the director of the International Hemp Building Association and a Senior Adviser to HempToday.

COVER STORY

HEMP 3.0

A bold new era of Hemp 3.0 can thrive if the industry embraces key developments that foster growth, sustainability, and ethical practices. If significant investments pour into research and development, then innovations in hemp cultivation, processing, and product diversification will flourish, unlocking the plant's remarkable potential to reshape industries from textiles to construction.

Hemp can establish itself as a powerhouse of economic growth and ecological stewardship if countries continue to liberalize their hemp policies and work towards globally harmonized standards, particularly concerning THC limits. This alignment would streamline international trade and reduce



HEMP 3.0

the regulatory hurdles that currently impede the flow of hemp products across borders.

The potential for regions such as Africa, Latin America, and Southeast Asia to become major hemp production hubs hinges on their ability to attract investment and develop infrastructure for sustainable cultivation and processing. If these areas can leverage their ideal climates for hemp farming, then they could emerge as vital suppliers of fibers, food products, and biomass, ultimately fostering regional trade agreements around hemp.

In the realm of international trade, hemp can secure its place if cannabinoid products like CBD and other emerging cannabinoids gain renewed interest. If the market stabilizes after the initial boom and bust, then we could see a diversified cannabinoid market emerge, providing a robust platform for international trade.

Sustainable fashions

Hemp textiles will flourish in the sustainable fashion sector if brands continue to prioritize eco-friendly materials. If hemp's inherent qualities—such as durability, antimicrobial properties, and a lower environmental impact—are widely recognized, then it could surpass cotton as a preferred choice for clothing and luxury items. Similarly, hemp-based construction materials like hempcrete can gain traction if they are positioned as carbon-sequestering solutions aligned with global sustainability goals.

The burgeoning health food market can embrace hemp seeds and oils if they continue to gain recognition for their nutritional benefits. If ongoing research validates hemp's role in livestock nutrition, then its seeds may become a staple in animal feed within sustainable farming systems.

However, challenges remain that could impede hemp's growth. If market oversupply occurs, particularly in the cannabinoid sector, then production may outpace demand, leading to economic strain. Additionally, regulatory uncertainties could stifle the market's potential if individual countries impose strict regulations on cannabinoid content and labeling.

Critical infrastructure

Infrastructure development is crucial; if countries fail to establish adequate processing facilities, they may struggle to keep pace with supply, causing bottlenecks in fiber and grain processing.

Hemp's role in carbon sequestration can be realized if it is embraced as both a crop that absorbs CO₂ and a building material that locks in carbon. If countries prioritize sustainability and circular economy models, then hemp can become an essential asset across multiple industries, from food and fiber to construction and fuel.

As advancements in genetic research and processing technologies emerge, if the industry focuses on sustainable practices and ethical behavior, then "Hemp Industry 3.0" can mature into a technologically advanced and diversified market. With the right investments and a commitment to innovation, hemp's versatility and environmental benefits will solidify its status as a vital resource for a sustainable future.

Fond memories? A look back at Hemp 2.0

If we've now embarked on Hemp 3.0, where did we just come from? The passage of the 2018 Farm Bill, often referred to as the dawn of "Hemp Industry 2.0," marked a crucial shift for the hemp sector, distinguishing it sharply from the two decades that preceded it. This period brought sweeping changes that reshaped how the industry operated, creating new opportunities and challenges alike.

Before 2018, industrial hemp cultivation in the U.S. was heavily restricted, constrained by the Controlled Substances Act of 1970, which classified hemp as a Schedule I drug due to its association with the cannabis plant, despite its low THC content. Hemp cultivation was only permitted in state-led pilot programs for research, a situation initiated by the 2014 Farm Bill but limited to small-scale trials. However, with the passage of the 2018 Farm Bill, hemp was removed from the list of controlled substances, granting it full federal legalization, provided it contained less than 0.3% THC. This legislative shift transformed hemp into a regular agricultural commodity, allowing farmers across the nation to engage in large-scale cultivation and interstate trade, sparking a wave of investment and innovation across the industry.

CBD unleashed

The Farm Bill also unleashed a boom in the CBD market. Previously, hemp-derived cannabidiol (CBD) was a niche product, with uncertain legal standing that confined it to a gray area, except in a few states that permitted CBD under medical marijuana laws. Following legalization, hemp-derived CBD products proliferated, with CBD emerging as a staple in wellness products like supplements, cosmetics, and alternative health remedies. This period witnessed a surge in companies competing to capture the rapidly expanding demand for CBD products, which had now gained mainstream acceptance.

Scaling up

As hemp production scaled up, farmers shifted from small, research-focused plots to large-scale farming operations, supported by burgeoning processing infrastructure. Investments poured into advanced extraction methods, processing facilities, and novel products, establishing hemp as a viable agricultural commodity. Yet, with this growth came growing pains; the rush to cultivate hemp led to market oversupply, particularly in the CBD sector, where production levels exceeded market demand. This glut brought about plummeting prices and underscored the need for a diversified market base, particularly in fiber and grain, where consistent demand and reliable processing facilities lagged behind.



Industrial potential unfolds

The legalization of hemp also drew new attention to its industrial applications beyond CBD. Before 2018, while the hemp industry mainly explored fiber, grain, and CBD applications, industrial uses in areas like textiles, bioplastics, and construction materials were largely underdeveloped. With the regulatory green light, however, innovators began tapping into hemp's potential for a variety of applications, from sustainable packaging and biofuels to automotive parts and hempcrete—a concrete alternative for green building. Although CBD remained the primary market driver post-legalization, these emerging sectors underscored hemp's broader potential.

Despite these advances, challenges in market maturation and infrastructure became evident. The rapid increase in hemp farming following legalization led to significant oversupply, notably in the CBD segment, where many growers found themselves with more biomass than the market could absorb. This surplus resulted in a steep decline in prices and re-

vealed gaps in the processing and distribution networks required to support a robust hemp industry. Farmers and investors alike had to recalibrate their approaches as the initial market enthusiasm waned, emphasizing the importance of developing sustainable supply chains and diversified product outlets.

The regulatory dance

The regulatory environment for hemp continued to pose hurdles even after the 2018 Farm Bill. Prior to legalization, hemp policy in the U.S. varied widely from state to state, with each state crafting its own rules around cultivation, research, and processing. Federal legalization brought some consistency, but regulatory oversight remained fragmented, especially regarding hemp-derived CBD. The FDA's slow development of guidelines for CBD use in foods, beverages, and supplements left manufacturers navigating a patchwork of state regulations. Some states implemented their own frameworks for production, testing, and sales, adding further complexity

for businesses operating across multiple jurisdictions.

The work ahead

The global trade landscape for hemp also shifted dramatically post-2018. U.S. hemp, previously sidelined in international markets due to domestic restrictions, quickly gained prominence as investors saw fresh international opportunities. Export markets began to open up, positioning the U.S. as a competitor to established producers in Canada and the European Union. However, the challenge of aligning domestic regulations with global standards remained, complicating efforts to access and expand into overseas markets.

In the broader perspective, the 2018 Farm Bill set industrial hemp on a path toward mainstream agricultural and industrial integration, highlighting its potential as a versatile commodity. Nonetheless, regulatory hurdles, market oversupply, and infrastructure gaps reveal the work that lies ahead to secure hemp's place in the modern economy.

How to harvest hemp's low-hanging fruit

Start with a market that's ready to buy

By Richard Rose
Special to Hemp Today

We've heard from almost everybody in the last five years how to make hemp successful enough for a million acres. From breeders to farmers to processors to retailers, even marijuana lawyers and a goat-herder.

Now it's time to hear from a Marketer who successfully trod this path in hemp starting 30 years ago and 14 years before that with soya.

Without strategic branding and marketing, none of that breeding, farming, and processing will get retail. That's the situation we find ourselves in today. Developing new markets for new materials is hard and expensive, but capturing existing ones is far easier to leverage big with the same number of dollars.

No accident

Creating hemp's most successful segment starting in the last century wasn't an accident or happenstance, but rather the predictable result of a team of food marketing professionals doing what they do best, with a decent budget, consistently for years. Marketing is marketing, whether widgets or tofu cheese or hempseed foods. That experience revealed it's easier for an existing company to succeed in hemp by pivoting to it than for a hemp start-up. The key to success for hemp in the U.S., for millions of waving broad acres of green Cannabis plants, is the same as always: go after the market easiest to sell a large volume of profitable products into, colloquially known as its "low-hanging fruit;" in this case, literally (hempseed is botanically a fruit). Then leverage each success to build the business and acres, incrementally and sustainably.

Target the one existing segment with millions of hempseed consumers and thousands of retailers in the U.S. already, the one with the most sales and profits and driving the most acres.

The segment with a total market of nearly 100%, which renews its need for the product daily and is completely legal globally and ready for export. Build a hempcrete wall and you'll never build that wall again, but eat hempseed and they'll just grow and process more for you to eat tomorrow. It is hemp's



Neptra Foods of Colorado makes baked goods and other foods based on hemp.

true renewable resource.

It is also the market that is her first billion-dollar one despite existing only about 30 years, which also offers far more climate change mitigation than hempcrete or EVs.

Made in . . . Canada

Food is the only hemp segment proven successful and profitable over the last 20 years; 90% of Canadian hemp is about food. It's the easiest way for a company to "get into hemp" with products on the shelf in just days or weeks.

And with a domestic market of thousands of stores supplied by Canada, China, and Europe, it would be an easy "Made in USA" replacement strategy to get shelf space.

That is hemp's low-hanging fruit, the one I naturally assumed the Green Rushers entering after 2018 legalization would logically flock to if only they knew about it.

The key word is "knew," because no one has yet told the story of how hemp got to where it is today, what has worked in the past and why, and what didn't. Hemp's biggest obstacle has long been the Dunning-Kruger Effect – delusion. Many erroneously think the U.S. hemp industry started in 2018 with the Farm Bill, or in 2014 with that Farm Bill, or in 2013 when Colorado planted its first state-legal crop.

But no, the U.S. hemp industry never died, seed and fiber have always been imported. In fact, sterile seed and stalk/fiber have been exempted from marijuana laws

from day one. The only change is that now it can be grown in the U.S., which was the end goal of many of us building demand and thus markets for hemp, as it would then increase pressure to legalize.

By simply growing hempseed and removing the shell, it can birth an entirely new hemp food processing industry making delicious raw food high in protein and omega-3. Foods containing shelled hempseed (hempnut) such as baby food, bagels, beverages, biscotti, bread, breadings, cakes, camping foods, candy, caramels, cereal, cheesecake, chocolate, cookies, crackers, cream cheese, cream soup, dessert topping, dip, dressing, energy bar, extruded or puffed snacks, falafel, flour, frozen dessert, fudge, granola, hard cheese, hummus, mayonnaise, meat alternatives, medical foods, miso, muesli, muffins, nut butter, oil, pancakes, parmesan alternative, pasta, pastries, pesto sauce, pet food, pie crust, pilaf, pita bread, pralines, pretzels, protein powder, pudding, sauces, scones, shakes, smoothies, snack chips, sour cream, tabouli, tahini, tempeh, toffee, tofu, tortillas, trail mix, truffles, veggie burgers, waffles, and yogurt.

Bring the avalanche

You get the picture, enabling the primary products in turn creates an avalanche of new secondary products based on it, potentially on the shelves in weeks. It also allows joint marketing efforts, such as a co-op Hemp Food Association booth at ExpoWest or

FMI. Again, these are the best practices we learned decades ago, the things that worked.

Some of the most advanced developments in hemp research in the last few years have been with the seed, medical as well as nutritional. And the cutting-edge work of hemp food companies like Neptra Foods and Planet Based Foods inspired me to reboot the Hemp Food Association (founded 1998) in 2022.

Get into hemp!

"Getting into hemp" via food is available to anyone, from the marginalized to a large corporation. Everyone eats, and food production is ubiquitous. Almost anyone could get a new food containing hempnut made nearby, package it, then sell it. A meritocracy, it rewards creativity and perseverance. A chocolate bar or tortilla with 5% hempnut, or milkshake and ice cream topping. Look around, from gelato shop to pasta maker, there are many ways to get a hemp food made with your brand locally.

Or not locally; some of the largest food retailers sell hempnut already, such as Walmart, Costco, even Woolworth's in Australia. Other large companies marketing hemp food include Patagonia, Nature's Path, Bob's Red Mill, and Tilray.

Margins are so fat one Canadian processor sold for an unusually high premium... twice.

My upcoming ebook "Seedy!" details

exactly why and how to get into hemp foods. A generation ago I proved the model for how to make money on hemp by slightly pivoting my successful Inc. 500 business from using tons of soybean to using tons of hempseed. Working with the dozens of brokers and distributors that helped us make America's most-hated food (tofu) popular in the Reagan '80s, we had shelf placement in thousands of stores in just months. It's the same business model still used today throughout the industry. And you don't even need a farm, building, or equipment to get started.

How do we disrupt 15% of food soya with hempseed, a million acres worth, which has long been my goal? It'll take the one thing Americans aren't good at anymore: cooperation. A strategically located processing plant with hundreds of thousands of acres in hemp within an hour away. Like in Canada, state and federal grants will be needed as well as an agreement from local supermarket chains and food processors to buy the "Made in USA" hempnut and other branded hemp foods.

Best is to organize as a co-op so that processor and farmer interests are aligned, with a consumer brand selling value-added products. Developing bespoke cultivars for their region and application, it will require investor patience and management skill.

Growing for grain produces at least four times more stalk than seed, so the fiber industries will have plenty of bast

and hurd. It's a win-win for the nascent hemp industry.

With "hemp THC" gummies sold in gas stations to teens scaring away USDA/NIFA grants, the legitimate hempseed food segment needs a little help from Congress. One is in the form of "THC-free" labeling for compliant GRAS hemp foods, much like we see for "fat-free" (<0.5g fat) and "alcohol-free" (<0.5% alcohol). Another is a standard of identity for shelled or hulled hempseed as "hempnut," thereby reducing label space and clarifying the product's standards.

One of hemp's problems has been the lack of a common narrative creating a community with a shared idea. We've seen a positive narrative in hemp a few times in the past with Jack Herer and then Charlotte Figi, whose story fueled the rise of CBD, but nothing since federal legalization.

That allowed us to fragment into many different industry silos, just one of the problems with "25,000 products from hemp." Then federal legalization encouraged a Green Rush by people entering from other industries infamous for dodgy dealing. The rash of fraud, lawsuits, and bankruptcies testify to that.

Existential crisis

The proliferation of "hemp THC" products is because it's far cheaper to synthesize various types of THC from hemp CBD, which is now sourced mostly from foreign farms of unknown provenance or soil quality. American farmers don't benefit and researchers have yet to see even one clean chromatogram of any of the thousands of dirty "hemp THC" products they tested. We need to fix bad laws, not find toxic workarounds just to boost profit margins.

And besides not helping American farmers or patients, stony cannabinoids ostensibly from hemp are creating an existential crisis for grain and fiber hemp.

Since 1980 I've been a processor and marketer of grains into value-added consumer packaged goods and industrial ingredients. And since 1994 I've spent millions to build a market in order to get U.S. farmers to grow hempseed.

All I wanted to do is feed and clothe people. Thirty years on, I'm still waiting.

Hemp veteran Richard Rose is, founder of the Hemp Food Association (1998). You can order his book "Seedy" [here](#).



Buy, Build, Synergize, Diversify

SYNBIOTIC's blueprint for a German cannabis powerhouse

Daniel Kruse is CEO of Düsseldorf-based SYNBIOTIC SE, where he is leading the publicly traded hemp and cannabis operator in building out a fully integrated group of companies with activities across the entire value chain from field to shelf. Kruse, who has founded several hemp and cannabis companies, has almost 30 years of experience in the industrial hemp and cannabis industries. He has been president of the European Industrial Hemp Association (EIHA) since 2019, and has served on the EIHA board of directors since 2013. Kruse is vice chairman of the Federation of International Hemp Organizations (FIHO), and works very closely with the German Cannabis Industry Association (BvCW).

HempToday: SYNBIOTIC looks on track to reach break-even next year. What got you there?

Daniel Kruse: A crucial first step was the implementation of comprehensive cost optimization measures. We were able to significantly reduce our operating costs without compromising on the quality of our products. Other measures included relocating company sites to Düsseldorf and increasingly centralizing logistics processes and synchronizing our ventures.

HempToday: You've put in place what you call a "buy-and-build" strategy: What does that really mean? What are you buying, and how are you building?

DK: Our holding strategically invests in promising ventures within the industrial hemp, and medical and recreational cannabis sectors. The goal is to maximize profitable synergies across the entire cannabis value chain. For example, the acquisition of Ilesol Pharmaceuticals in Croatia this year closed a gap in the company's supply chain by giving it independent, in-house production. The deal allows us to produce CBD isolates with a "Made in EU" label, which fits into our Europe-wide strategy.

This synergy and diversification strategy not only completes our supply chain and increases our sales potential, but also increases SYNBIOTIC's importance for large, strategic investors from outside Europe.

HT: What makes SYNBIOTIC stand out against other publicly traded cannabis operators?

DK: As mentioned before, in addition to the synergies, it's our diversification across all hemp and cannabis subsectors, and along all parts of the value chain. We've managed to put together a strong European group of experienced companies that cover the cannabis growth markets to maximize value while minimizing risk for investors through diversifying our operations. Also, our entire corporate strategy is built around targeted acquisitions and the integration of new business areas. This applies, among other things, to synergies in the areas of administration, processing costs, production and sales.



"We've managed to put together a strong European group of experienced companies that cover the cannabis growth markets to maximize value while minimizing risk for investors."

HT: It would appear that the medical and recreational markets will grow as a percentage of the company's overall business. What is your strategy for those sectors?

DK: In our medical cannabis division, we are focusing on the growing demand that has increased significantly as a result of easier access following partial legalization. With the recreational cannabis sector established as essentially a home-grower market, we have a comprehensive portfolio, including products for home cultivation such as seeds, cuttings and cultivation accessories.

HT: SYNBIOTIC has unusually strong roots in hemp because of your many years of experience with that part of the cannabis family. How important is hemp to the company's all-cannabis strategy?

DK: We're meeting demand in the industrial hemp sector with sustainable, versatile raw materials and end-user products such as cosmetics, accessories, feed and food. Our hemp companies contribute 40% to our total business and are taking advantage of all parts of the hemp plant. These are mature companies that have been on the market for years, are well-positioned in their sectors, and are poised to grow as the overall hemp market grows.

The acquisition and excellent performance of WEECO Pharma has, of course, led to a very strong and powerful shift in the revenue ratio within our group of companies in favor of medical cannabis. This business area also plays an extremely important role in our plans for the future.

HT: What has been the impact of the Cannabis Control Act (CanG) been on SYNBIOTIC?

DK: The CanG is having a very positive impact and opening up numerous new opportunities for us. With the partial legalization of cannabis in Germany, we are already experiencing a significant increase in demand in several of our business areas. Our "buy-and-build" strategy allows us to move quickly, on a sure footing, to take advantage of those opportunities.

HT: What does removal of the "intoxication clause" mean in practice? Is the legal and regulatory landscape for CBD improving?

"We're meeting demand in the industrial hemp sector with sustainable, versatile raw materials and end-user products such as cosmetics, accessories, feed and food."

"The market for hemp extracts and CBD isolates alone is a growth market worth billions."

DK: With the removal of the intoxication clause, a market that has been in a gray area since 2017 will be able to consolidate into legality. CBD flowers are extremely popular and in demand in Germany, similar to non-alcoholic or light beer. The market can be estimated at several hundred million euros in turnover.

Once the Industrial Hemp Liberalization Act comes into force in 2025, hemp flowers can then be marketed as an herbal smoking product under the rules of the TPD (Tobacco Product Directive) or German tobacco law. Preparations and formulations made from industrial hemp would then also fall under the new law. Classic CBD oils can then finally be legally marketed in the future, as soon as the Novel Food registrations have been successfully completed and the sectoral regulations for these products have been observed.

HT: You went through the CBD crash, and you've been at the center of the CBD "novel food" process in both Europe and the UK. How are you viewing that sector as it rebounds?

DK: The market for hemp extracts and CBD isolates alone is a growth market worth billions. The cosmetics industry has long since discovered hemp and CBD for itself and demand is increasing significantly. If the EU Commission decides in favor of the numerous novel food applications next year, the demand for hemp extracts and CBD isolates in the food supplement sector will increase many times over.

HT: How do you see the potential for growth in "true hemp" -- the purely, or non-flower, industrial applications?

DK: Those subsectors are often underestimated and have enormous potential, which is only now slowly being tapped. A major obstacle to the development of the industrial hemp industry in Germany has been the so-called 'intoxication clause' (i.e. the alleged potential for abuse of industrial hemp products), which has severely restricted the cultivation and processing of hemp. But the changes are coming, and we are already strongly positioned in this area. With the right regulatory adjustments, the entire industry will benefit greatly. The industrial hemp industry is a sleeping giant that is only just beginning to awaken and realize its full potential.



"From a dollar amount, domestic textile markets represent tens of billions in American economic productivity."

Recapturing a legacy

Demand, innovation, investment needed to re-establish U.S. hemp

Dave Cook is co-founder and owner of [Tuscarora Mills](#), Bedford, Pennsylvania, a manufacturer of flat woven textile fabrics made from hemp and other natural fibers. An expert in textile supply chains – from fiber acquisition to finished woven fabric – Cook and his company are working to establish industrial hemp as a viable agricultural commodity to supply fiber to the apparel industry.

Hemp Today: The conventional textile markets in the U.S. are dominated by cheap imports, a situation that doesn't look likely to change when we talk about things on a big scale.

Dave Cook: The simple truth is foreign materials, manufacturing and labor produce products lower in cost than domestically made goods, particularly in apparel. These "lower" offshore costs afford the major apparel brands and manufacturers the margins necessary to compensate for waste in overproduction; sustain brand maintenance and marketing expenses; and satisfy investor and shareholder short-term obligations.

But a transition has begun away from the "cheap" concept of foreign-made apparel and textiles – maybe not on a grand systemic scale, but certainly in consumer, corporate and government attitudes about the United States' exposure to the global supply chain realities and vulnerabilities. Widespread recognition has emerged that imported textile products are not cheap at all, but indeed carry huge environmental, health, economic and national security costs.

HT: What's needed to make that transition from a broader strategic point of view?

DC: A successful systemic transformation of textile markets away from plastic fiber and global supply chains will hinge on factors like regulation of plastic use and greenhouse gas emissions; transparency in sourcing and supply chains; labor and living wages; apparel design and manufacturing practices; and bringing to market consumer-facing hemp and other natural fiber textile products.

HT: And what's needed from a pure manufacturing standpoint?

DC: Demand, innovation and investment are needed to re-establish hemp-specific textile processing and spinning infrastructure in the U.S. Today fiber buyers, processors, and spinners from China, India, Japan, Pakistan and Europe are all active in the American hemp textile fiber space. They see opportunity and value in American hemp fiber. At the same time,

“American hemp fiber currently being processed is more adaptable to the specifications of non-woven markets than the more demanding fiber length, diameter and consistency standards necessary for use in spinning yarn.”

the U.S. Department of Agriculture’s Agricultural Research Service and Agricultural Marketing Service have really begun to support hemp research, marketing, testing and processing. Hopefully, American investment in industrial hemp infrastructure will continue to expand.

HT: Whether conventional or natural, isn’t the American apparel market mostly limited to niche markets and maybe design?

DC: Hemp fabric and apparel is certainly a niche in the U.S. But there are brands that are leading the marketplace toward American-sourced and manufactured hemp apparel. All others are sourcing from Asia the hemp yarn and fabric necessary for their domestic or offshore manufacturing efforts. While I agree that American apparel and textiles are, in essence, niche products in relation to global market share, from a dollar amount, domestic textile markets represent tens of billions in American economic productivity.

HT: What does American textile manufacturing look like today?

DC: It’s divided into three basic categories: knits, wovens and nonwovens, and nascent 3D. Industrial, commercial and non-woven markets are much larger than the apparel textile sector. Non-wovens represent a huge market due to their low cost, diverse consumer acceptance and industrial market integration. Knits dominate apparel and footwear. Flat woven fabric manufacturing is more labor intensive and limited to niche industrial markets: high-end apparel; home and commercial interiors; luxury and performance-based products; and Department of Defense contracts for clothing, uniforms, and high-tech fabrics.

HT: And what about the hemp textile sector specifically?

DC: Today there is a poor domestic understanding of hemp textile fiber quality and characteristics. Our knowledge of cotton and wool fiber today is the result of decades of research resulting in the introduction of USDA standards and

testing programs. Establishing similar standards for hemp fiber is critical for the development of the American hemp fiber market.

Domestic and foreign hemp fiber has found a home in the U.S. non-woven textile manufacturing and consumer supply chain. American hemp fiber currently being processed is more adaptable to the specifications of non-woven markets than the more demanding fiber length, diameter and consistency standards necessary for use in spinning yarn.

Transforming American hemp into short staple length “cottonized” fiber and spinning blended hemp-cotton yarn has been a long-term goal. While efforts to date have struggled to find consistency, quality and performance, these challenges will be overcome, as they have in China and Europe.

HT: How do you see the arc of development in natural fibers over the next several years?

DC: Today 70% of global textile fiber is made from extracted ancient hydrocarbon molecules and other synthetic materials. But changing consumer attitudes about synthetic fiber and fabric, toxic dyes and finishes, forever chemicals and micro-nano plastic pollution from textiles are evident everywhere.

Natural fibers like hemp, flax, jute and sisal have served humanity for eons as renewable natural materials that delivered performance. Fundamental questions about price, value and style in apparel and textiles are influencing design and fashion trends toward repair, repurposing, recycling and use of natural fibers through circular design.

HT: With hemp specifically, how do you see supply and demand unfolding?

DC: Hemp fiber for textiles represents a meager 0.2% of worldwide textile fiber production. There is real demand for hemp materials in American industrial supply chains, but gaps exist in hemp genetics, processing and manufacturing, making it impractical and expensive to work around. For these gaps to be filled, buyers and end users need to get involved. Consequential development and

growth will occur in the hemp-derived bio-based materials industrial supply chain with holistic collaboration, development and shared risk.

HT: How does your company fit into that paradigm?

DC: This growing season, Tuscarora Mills is collaborating with our Pennsylvania hemp textile supply chain partners to meet the genetics and fiber specs necessary to produce 100% hemp yarn. Our goal is to draw from a functional hemp textile supply chain, working around existing gaps, to source American hemp fiber and manufacture American-made textile goods for American markets and American consumers.

HT: According to the most recent USDA hemp report, Pennsylvania farmers are growing very little hemp. What is happening in your state to get things going?

DC: Pennsylvania was once a world leader in the production of natural textile fiber and fabrics. Our common textile legacy begins with William Penn’s 1681 Colonial charter encouraging the production and processing of hemp and flax for textiles.

Our state benefits from a great industrial hemp program that has embraced all aspects of supply chain development, and is poised to be a leading producer and exporter of hemp-based products. We are fortunate to have many statewide hemp and natural fiber advocacy groups like the Pennsylvania Fibershed, Pennsylvania Flax Project, Pennsylvania Hemp Industry Council, and the Pennsylvania Hemp Steering Committee, all working for the plant and Pennsylvanians. Last year a Pennsylvania-based group was awarded a \$1 million National Science Foundation (NSF) grant to develop the Pennsylvania Industrial Hemp Engine. This is a multi-phase effort that is working to develop a robust industrial hemp ecosystem centered in Pennsylvania by fostering collaborative research and scalable demonstration programs. The goal is to produce industrial hemp materials and finished goods.



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A Growing Awareness

Scaling crops, knowledge and demand for a hemp-based future

Steve Allin pioneered the [IHBA](#), which he serves as director. An author, teacher and consultant on ecological building, Allin has been building with hemp and promoting hemp's use in construction all over the world for more than 20 years. He is the author of "Building with Hemp" (2005, 2012) and "Hemp Buildings: 50 International Case Studies" (2021). Steve lives in Rusheens, Kenmare, County Kerry, Ireland.

HT: When we first talked way back in 2015, you said the understanding of natural materials among modern mainstream builders was low. Is the awareness of hemp growing among the broader construction industry?

Steve Allin: The awareness is beginning to expand especially where hemp materials are readily available in countries such as France, Belgium, Britain, Germany, Italy and the Netherlands. As the measurement of carbon implications of building materials and systems becomes more accurate, hemp is left standing proudly above most other competitors and its use can be more easily justified as superior.

HT: Later, in 2016 you said hemp construction could expand quickly if several large projects were to happen simultaneously; what large projects have we seen come to fruition since that time?

SA: I wouldn't say it has happened quickly, but several large projects have been completed in the last few years. For example, there has been a succession of plans in Sweden that began with a large-scale logistics center planned around the use of hemp fiber insulation-filled panels, which seems to have led to the support for a hemp processing and insulation factory now to be built.

In Italy, the use of hempcrete for a range of structures has taken hold in certain areas, and in both Britain and France, housing projects have been built with great success.

But the media get bored quickly with stories about positive impacts even though they might offer hope for humanity. And so these haven't been promoted as they might have been. Size matters, as has been seen recently with the 12-story hotel in Cape Town, South Africa, built using locally made hempcrete blocks.

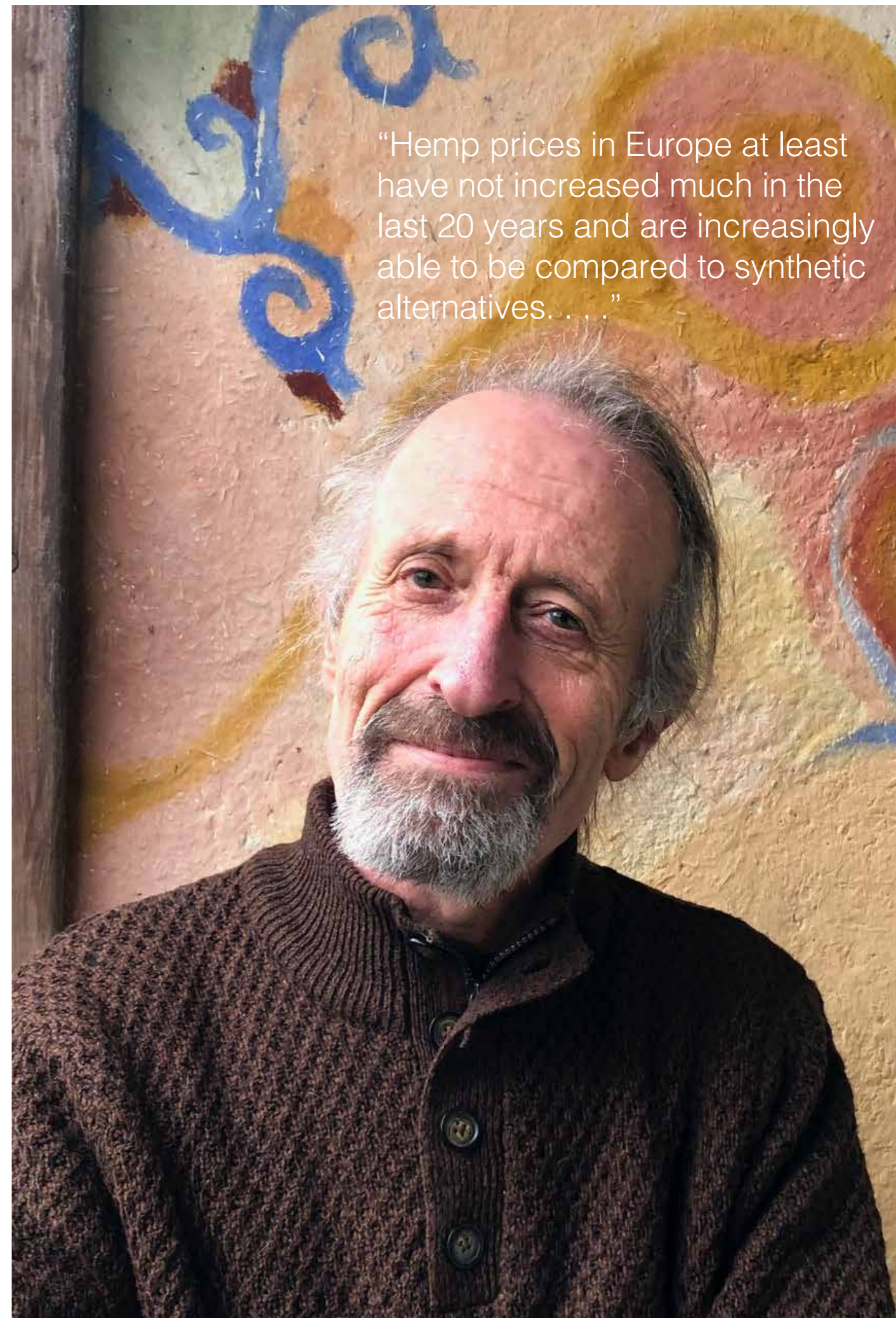
HT: How would you describe the costs of basic hemp building materials – hurd for hempcrete and technical fibers for insulation? Has there been any progress toward parity with conventional materials?

SA: When the initial price increases of petrochemicals came after Putin's invasion of Ukraine, there was a surge of interest in alternatives to energy-intensive expanded foam solutions for external insulation systems. This helped the awareness of hemp materials as an alternative to such toxic options for a while, but there are still massive subsidies to the fossil fuel industry that perpetuate the unfair, unrealistic price difference.

Hemp prices in Europe at least have not increased much in the last 20 years and are increasingly able to be compared to synthetic alternatives, but the speed of installation or construction is a very important part of costs.

HT: What are the most promising recent developments in the application of hempcrete? What kinds of technology are out there to speed up the process?

"Hemp prices in Europe at least have not increased much in the last 20 years and are increasingly able to be compared to synthetic alternatives. . . ."



HEMP 3.0: LEADERS

“The other extremely important issue is the training of architects and engineers, who get very little information about alternative materials, especially those such as hemp.”

SA: Spray application of hempcrete is now a well-understood technology and has been recognized by many builders who need a faster manner of installation, especially for retrofit projects. Prefabricated blocks are also being used more widely as production has been increased in Belgium with IsoHemp and in Italy with Tecnocanapa Sennini, and many more in France, Italy and Portugal recently. There is also an increasing variety of internal architecture products such as acoustic wall and ceiling panels.

Another exciting product is Hempwood, which is a beautiful replacement for hardwood timber. I can see this used increasingly for both flooring and furniture as it begins to be manufactured more widely.

I think the main growth will come from combining all the innovations we have developed using hemp materials into a quickly erected modular system to be able to build quality and affordable housing. Such prefabricated modular systems provide simple off-the-shelf solutions to the whole construction process and can be specified more easily by architects or engineers overseeing any size project.

There also needs to be a wide-scale rollout of training for the many young refugees turning up on our shores, as they can't all have a job in IT, and many will have to learn how to build the homes they will require that simply aren't here.

HT: What else needs to happen to ensure that the hemp construction sector is ready for rapid expansion and growth?

SA: Hemp or any natural crop cannot be produced by turning on a tap. Each annual harvest will decide what is available for the market. However, at present most hemp processing facilities could theoretically triple their output as most are only working a single shift a day. With a reasonable increase in contracted planting, the agricultural sector could attempt to feed that larger supply, but the financial incentive would have to be clear for any farmers to change what they are already growing.

Ensuring that the farmers know exactly what is required from them to plant

a successful crop is essential as without a good quality supply of materials from the field there will be no industry. This is where the hemp farmer relies on processors to have the harvesting machinery so that the resulting straw is of the correct quality and is gathered in the shortest time. With increased areas under hemp cultivation, there will eventually be an interest from agricultural contractors to invest and take on the role. This is the starting point of the process.

The other extremely important issue is the training of architects and engineers, who get very little information about alternative materials, especially those such as hemp. From my personal experience, the training and education of these young students is appalling. Many of the modules that are part of their degrees are years out of date and nowhere near as inclusive as they need to be to address carbon emission reductions through materials or occupancy. It seems the lecturers or heads of department are too lazy or filled with their own self-importance to bother changing things. If the professionals involved with designing our buildings don't know about these alternatives, how are clients going to use them?

HT: National and local building regulations have been a real problem facing hempcrete construction. Are we seeing any progress there?

SA: Yes we are, even though there are obviously many projects that do get approval in every region of the world. The successes have usually been down to dogged perseverance by the client in lobbying local regulators who, if they get a chance to actually see and understand hempcrete, give approval readily.

In the USA the system for material approval is different than in the EU or most member countries. In the States, how a material is used is more important than exactly how it performs. This has made it easier for the U.S. Hemp Building Association to gather the funds to enable them to insert hemp materials into the ASTM Standards. In Europe, we are up against a set of parameters set by the synthetic materials industry, which

relies on laboratory performance with a test environment unlikely to be found in reality, with the focus on Lambda values especially. This, of course, has big impacts on how buildings are designed, built or retrofitted to realistically address climate change and energy use.

To address this situation in Europe, the IHBA is working with the European Industrial Hemp Association in a working group to set the parameters to present to European regulatory bodies, which will make it far easier for them to be detailed in building plans.

HT: How can hemp growers, building suppliers and builders benefit from governments' growing emphasis on CO2 removal? Are there financial incentives being developed?

SA: This is an area getting much attention at the moment, but I am not sure we have totally accurate methods of measuring carbon sequestration, especially in the soil. I am also very skeptical of any carbon credits that are produced only as a way for big, polluting corporations to pretend they are mitigating their own emissions. Carbon credits are being invented based on several different methods of accounting for carbon storage or removal, but these will need to be part of a thorough, transparent evaluation of how the crops are grown, harvested, processed and then used, to be able to determine how stable the carbon actually is.

Far more important is measuring all the savings being made by not having ill health from our built environments, from helping agriculture to be less toxic and damaging, and saving massive amounts of energy and money by insulating our existing buildings. This can be seen by the three largest such buildings in the last 15 years: The Adnams Brewery distribution Centre and the Wine Society warehouse both in the UK and the replacement hempcrete facade of the Voorst region Town Hall in the Netherlands have each shown that with hempcrete envelopes, heating and cooling bills of €40,000 – €50,000 have been reduced to zero. We can only imagine how many emissions we could remove by doing this.

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SWOT 2025

Opportunities and vulnerabilities facing hemp in the year ahead

As the impacts of climate change sharpen the focus on sustainability, hemp businesses stand to gain from a growing number of private-sector and government-funded initiatives, according to a new paper to be published early next year.

Investment into hemp, a relatively “new” industrial sector, is going first into research, and to develop supply chains, according to the 2025 Industrial Hemp SWOT Analysis Report from U.S.-based Canna Markets Group (CMG).

The report is the first-ever look at hemp in the framework of SWOT analysis, which evaluates the health of an industry or company based on “strengths, weaknesses, opportunities,” and “threats.” The report looks across business categories and sectors, considering its potential in different destination industries -- those industries where hemp raw materials have a promising role to play.

‘Poised’

“Industrial hemp is poised to remain a benefactor of private sector and government funding amid the ongoing necessity of integrating sustainable and circular economies at scale worldwide,” said Joseph Carringer, CMG Lead Strategist & Project Manager.

With many governments and corporations adopting aggressive goals for climate change mitigation, and growing demand for



Pre-order the 2025 Industrial Hemp SWOT Analysis Report (\$99) from HempToday. The report will be published and delivered to your inbox on Tuesday, Jan. 14, 2025.

sustainable materials and practices, hemp has the “opportunity” to stand out as an eco-friendly alternative to synthetic and less sustainable materials in sectors like textiles, the report asserts.

“This report is vital for establishing and developing hemp businesses, providing crucial data and perspective for executive

leadership and project managers to make well-informed business decisions,” said Carringer.

In other observations, the paper suggests that the hemp building materials sector, while promising, will struggle to make inroads against other “green” solutions and entrenched conventional building materials producers – identifying that as a “weakness.” While the hemp building market has great potential, it has yet to demonstrate that it can be competitive, and still needs broad acceptance among building certification schemes around the world, according to the report.

Vulnerabilities

The hasty investment in big processor modeling has also resulted in a “weakness,” according to the report. That’s because little has been done to establish “deep and stable consumer recognition” or to popularize hemp products, the report asserts. “This has left the developing industrial hemp manufacturing supply chain vulnerable to multiple points of failure,” it observes.

The report sees viable investment “opportunities” in hemp long fiber production and processing, specifically for hemp twine and yarn for textiles. Developing those sectors can be a hedge against Chinese imports, which the report describes as one of the “threats” to U.S. hemp.





‘From the soil up’

Sustainability benefits can be lost if hemp textile production follows conventional ag practices

While hemp production for textiles is at a “watershed moment,” hemp won’t bring promised sustainability without attention to how crops are grown, a recent paper argues.

“This is a material with a lot of sustainability potential, and the industry has an opportunity to shape its production system from the soil up,” according to “Growing Hemp for the Future,” a paper from Textile Exchange, a global non-profit focused on climate change across the textile and apparel industry.

However, “if we conduct business as usual, the same negative impacts on communities and the environment could well occur from the practices that are common in conventional agriculture today,” the paper warns.

Global fiber hemp production by volume is currently running at the same level it reached in 1961 but those fields take up far less land with far greater efficiency, resulting in higher yields, according to statistics from the UN’s Food & Agriculture Organization.

And with restrictions on long-stigmatized industrial hemp being lifted around the world and increased awareness of hemp fiber

products, production capacity is growing, according to Textile Exchange.

“Having more decorticators not only increases production capacity but opens opportunities for second-level processors and manufacturers,” the paper observes.

‘Work in harmony’

While hemp’s sustainability attributes are well known among the public, if hemp follows the typical farming profile, posing risks to air and water, environmentally conscious consumers “could simply move on, looking for the next innovation to scale,” the authors suggest.

Growing, sourcing, or wearing hemp do not offer solutions themselves, according to the paper, which addresses the entire production chain including the roles of farmers, producers, NGOs and consumers.

Because there are few conventional pesticides currently authorized for hemp production, the hemp fiber sector has the potential to develop production practices that work in harmony with nature and result in measurable benefits. Sustainable practices for hemp can therefore be created “from

scratch,” according to the paper.

Biological pesticides are, to date, the primary pesticides governments permit for use on fiber hemp, however, “availability and use of synthetic pesticides on fiber hemp is likely to expand without the industry taking precautions to anticipate, prevent, or minimize the potential impacts of agricultural inputs and mitigate adverse effects,” the authors warn.

Hemp and carbon

The paper also points out that further guidance is needed regarding how to account for soil carbon sequestration in the hemp textiles value chain. “The extent to which carbon sequestered in soils in this system can be accounted for is not well defined,” the paper observes.

“This means it is not possible to include carbon sequestration across natural fibers, including hemp fibers, when calculating GHG (greenhouse gas) emissions for natural fiber products. Nor (is it) acceptable to make such claims in promotional media which could lead to greenwashing concerns,” the authors say.

Guidance that is taking place should help by providing methods for accounting for land sector carbon removals from hemp cultivation, according to Textile Exchange. The Greenhouse Gas Protocol Land Sector Removals Guidance is the initiative of a multi-stakeholder partnership of businesses, non-governmental organizations and governments working to develop international GHG accounting and reporting standards and tools.

According to LCA accounting rules – developed to help ensure consistency in the footprinting of products and processes – it is not possible to account for carbon sequestration if the carbon is sequestered for less than 100 years, the paper also points out.

Findings & recommendations

Among other findings and recommendations in the paper:

- Governments should support research into the use of natural, organic, and regenerative farming practices for hemp production which prioritize soil regeneration, avoid the use of hazardous pesticides and fertilizers, and address improved water use and quality.
- Public data that supports sustainability claims and identifies fiber hemp production regions and quantities need to be made more widely available.
- The global production of fiber hemp by country, volume, unit of land measurement, method of production and price should be documented and reported annually.
- Robust regulations and standards to protect the rights of labor, indigenous and local communities should be established, including provisions to protect against environmental contamination.
- Brands should demonstrate commitment to responsible fiber sourcing by having a clear supply chain and sourcing policy that prioritizes organic, preferred, or regenerative farming practices.
- Long-term business relationships between farmers and producers should be based on a reliable system to verify sustainability claims and ensure traceability in the sourcing of hemp and other raw materials through to finished products.
- NGOs should work with government, academia, farmers/farm organizations, trade associations, and researchers to develop Best Management Practices for agriculture.
- Industry organizations should promote the benefits of responsible hemp production by facilitating research and education into production practices and hemp’s benefits and sustainability.

“We encourage governments, brands, and farmers alike to set up systems that will result in high quality raw material with low toxicity inputs and maximum benefits to the environment,” the paper’s authors conclude. “By working collaboratively and applying learnings from the past, we can leverage its holistic benefits to meet our climate and nature targets.”

Global hemp textile leaders

Countries with fiber hemp production by volume in 2021

Country	Tonnes	Pounds	Percent	Rank
France	143,110	314,842,000	47%	1
China	72,878	160,331,996	24%	2
United States	15,113	33,249,000	5%	3
North Korea	15,097	33,212,564	5%	4
Poland	15,080	33,176,000	5%	5
Netherlands	13,280	29,216,000	4%	6
Austria	10,700	23,540,000	4%	7
Italy	4,710	10,362,000	2%	8
Chile	4,216	9,274,276	1%	9
Romania	2,770	6,094,000	1%	10
Lithuania	1,800	3,960,000	1%	11
Russian Federation	1,322	2,909,060	0%	12
Spain	1,160	2,552,000	0%	13
Ukraine	738	1,622,522	0%	14
Greece	220	484,000	0%	15
Bulgaria	160	352,000	0%	16
Czechia	60	132,000	0%	17
Turkey	21	46,200	0%	18
South Korea	16	35,508	0%	19
Japan	1	1,188	0%	20
Global	302,451	665,392,314	-	-

The French Way

Fiber processing factory seen as weapon in fight against ‘fast fashion’

A French cooperative has opened a hemp fiber processing center in the Occitanie region, turning out “ecological and ethical” fibers for the textile and construction industries.

Virgocoop, at Caylus, Tarn-et-Garonne in the south-central region of France, aims to be the catalyst for expanding the local hemp production chain, according to the co-op’s leadership.

The cooperative is working on a traceability scheme and labeling standards for hemp fibers, and encourages farmers to use organic agriculture methods. Virgocoop recorded 200 hectares of hemp cultivated in 2023, when 1,500 tons of straw were processed – accounting for 10% of the total produced in France last year.

Textiles with ‘meaning’

The initiative is intended as pushback against “fast fashion,” high-volume production that results in low-price clothing but is marked by wastefulness, exploitation of workers, low quality and negative environmental impact. Manufacturing of such products has been blamed for as much as 10% of global greenhouse gas emissions.

Virgocoop, which was started in 2018, has 270 members and hopes to attract an additional 100, said General Director Johann Vacandere. It is open to producers, fiber processors, construction professionals, fashion brands and consumers.



Clothing makers Atelier Tuffery and Baserange, designer Héloïse Leveux and German brand Wildling Shoes are already in the cooperative

The hemp initiative has a goal of “giving meaning back to the textile sector by involving citizens, farmers, businesses and communities around the same mission: developing an ecological textile sector, ethics and source of dynamism for the territories.”

25 production lines

Virgocoop received €75,000 in fund-

ing for the new decortication factory from the Occitanie regional government last year. Technical fibers turned out by the facility go into hemp yarn production and insulation for the construction industry. The Caylus facility has 25 production lines with different size outputs that can be combined with other materials such as wool or linen.

Virgocoop is also studying nettle for the production of sails and rope, as well as cotton production.

The co-op had €300,000 in turnover in 2023, and hopes to reach €1 million this year.

Initiative envisions local fiber supply chains boosting farmers’ fortunes

Stakeholders and local officials in south-central France say they have harvested initial trial hemp crops, holding out hope that the plant could lift the fortunes of local farmers.

Aura Chanvre, a Lyon-based association working to revitalize the hemp textile industry in the Auvergne-Rhône-Alpes region, is leading the project, under which 11 farms in the Roannais and Forez sub-regions planted 18 hectares of trial fields this season.

Local supply chains

The initiative is probing the potential for developing local hemp supply chains in the Massif Central, a large plateau region known for its rugged terrain, sparse population, and relatively underdeveloped



economy. Most agriculture in the area is based on forage crops and livestock.

“It is a challenge for sustainable development and the circular economy that must be supported,” Hervé Gérin, sub-prefect of Roanne, told the Lessor Loire website. Other elected officials, farmers and producers are also involved

in the initiative, which aims to create “a local, ecological, and equitable textile fiber supply chain.”

Fabric makers interested

Linder, a maker of fabrics, curtains, sheers, and tablecloths, and Tissages de Charlieu, a specialist in textiles for fashion, furniture, and the aeronautics industries, have both expressed interest in the initiative, according to Lessor Loire.

Hemp straw will also be explored for its potential to turn out hurd for hemp-concrete and fiber batting for France’s growing eco-construction industry.

The hemp trials are being financed by the municipalities participating in the project. The experimental phase could last from 3 to 5 years, organizers said.



Volkswagen developing hemp material to replace faux leather

German auto giant Volkswagen said it has launched a research and development project that will study the potential for hemp bast fibers in the production of a bio-based substitute for imitation leather that can be used in car interiors, hoping to begin using the material beginning with its 2028 models.

The Wolfsburg-based carmaker said it is working with startup bio-materials maker Revoltech GmbH, Darmstadt, on the surface material, dubbed LOVR – “leather-free, oil-free, vegan and residue-based.” Volkswagen’s Materials Technology, Design, and Components Development departments, and Volkswagen Group Innovation are all involved in the R&D effort, the company said in a press release.

No retooling needed

“Our clear goal is to fuse customer wishes, sustainability requirements and corporate interests,” said Andreas Walin-gen, Head of Strategy at the Volkswagen, who said the initiative reflects his company’s sustainability goals.

Volkswagen said the material, which can be recycled or composted at the end of its service life, is scalable and can be produced in existing factories. The company said it is using raw material that is a waste byproduct from regional farms where hemp seed is produced for the food industry. In addition to hemp fibers, the covering includes fully bio-based adhesive.

The company wants to get going on actual applications “as swiftly as possible,” according to the release.

Consumers’ thumbs up

The covering could be used as the outermost layer of interior components such as seats, dashboards, door panels, steering wheels, and others. Carmakers select materials for these components based on their aesthetic appeal, durability, comfort, and – increasingly – for their environmental impact.

Imitation leather, now widely used in the auto industry, is made with synthetic materials such as polyurethane, PVC, and microfiber, combined with backing fabrics that are treated – all of which are highly polluting.

The 100% bio material Volkswagen is developing has already received positive feedback from consumers in initial presentations, according to the carmaker.

Demand seen growing

Revoltech has also developed LignoLeaf, a plastics replacement made from lignin, an organic polymer found in the cell walls of plants, especially wood and bark.

Volkswagen is the second-largest automaker in the world – behind Japan’s Toyota – by vehicle sales, with approximately 4.15 million vehicles sold in the first half of this year.

Automotive analysts have said that as carmakers seek greater sustainability, the use of hemp and other bio-based raw materials is likely to grow, driven by the need for lightweight components that reduce emissions and improve fuel efficiency, and increasing consumer demand for eco-friendly products.

Other ways automakers are using industrial hemp

Industrial hemp-based raw materials are gaining increasing attention in the automotive industry, particularly for use in composite parts. Hemp fibers are valued for their sustainability and light weight. In addition to seat padding and upholstery here are other ways hemp is being used in automaking:

Interior panels and trim: Hemp fibers provide high tensile strength and durability, which makes them suitable for producing strong yet lightweight interior components such as door panels, dashboards, headliners, and other interior trim parts. They also offer a natural aesthetic and are often used in combination with natural resins to improve their mechanical properties.

Structural components: Hemp’s ability to blend well with various polymers makes it versatile for a number of exterior applications. When used in composites, hemp bast or “technical” fibers can improve the stiffness and strength of car bodies, bumpers and other structural parts, contributing to better crash performance and overall structural integrity. Hemp fibers are often combined with thermoplastics or bioplastics to create components that are both strong and environmentally friendly.

Insulation and soundproofing: Hemp’s natural fibrous structure makes it an excellent insulator, providing soundproofing and thermal properties in floor mats, insulation panels, and acoustic dampening materials. Its resistant to mold and mildew also makes hemp suitable for automotive interiors.

Just in Time

‘The opportunity for hemp is to integrate with modern technologies’

Liam Donohoe is a lecturer in Engineering at Technological University Dublin, where he earned a Master's degree in Energy Management. As a PhD Fiosraigh Scholar at TU Dublin's School of Electrical and Electronic Engineering, he is researching the development of an international standard rating methodology for the dynamic energy performance of hempcrete. A specialist in building energy certification and no- and low-carbon product, standards and systems development, Donohoe founded Black Mountain Insulation Ltd., a global leader in natural insulation materials. He is a director at the International Hemp Building Association (IHBA) and at UK Hempcrete (UKH) where he is Chief Operations Officer.

HempToday: When it comes to bio-based construction materials, what is hemp competing with?

Liam Donohoe: Hemp is competing with everything else in the market. When we pitched the UK Hempcrete business to investors, we had a slide showing the main biobased competitors in Britain and Ireland. The investor we were talking to said, no, tell me you are competing with Kingspan, you are competing with Knauf, you are competing with Rockwool.

A few months later, Kingspan had made two significant investments in the biobased space. His point was: “You are telling me, hemp has the potential to go mainstream. Walk it and talk it.”

HT: What makes hemp better than rammed earth, straw bale, or other natural building materials?

LD: It's not a case of hemp being “bet-

ter.” It's a case of hemp being at a more advanced level of development. We see biobased materials being complementary to hemp as we share similar visions and ethos. But hemp has been invested in and researched so professionally and thoroughly now, at least in Europe, that we have got it to a point where, like any other fiber insulation or low-carbon, insulating block material, it can be specified and implemented in any construction project, from a garden shed to a large international office. UK Hempcrete has clients at both ends and all points of the spectrum in between. Specifically, we see more commonly that architects representing clients often come to us saying, we want to cast hempcrete, and we say why is that, haven't you heard about ISOHEMP blocks? These are fully certified, dry, solid, regular, and arrive on the site just in time when you need them.

Rammed earth and straw bale just don't yet arrive on the site according to the building cycle.

HT: What can hemp construction do for the global challenge in housing needs?

The opportunity for hemp is to integrate now with modern technologies for lean construction, and also with modern methods of construction. So I think we will see more modular housing concepts, for example, something like Ian Pritchett developed with BIOND, and now Greencore, Dun Agro and, of course, ISOHEMP, have done with their blocks which we distribute in the UK. We could spend every day reviewing scalable projects with the number of inquiries we now get from housing developers. Also, in the university, we have been working with timber frame home manufacturers, and hope to develop a project there soon.

HT: The concept of the “passive house” looks like a marriage between traditional construction and technology. What's your view on this whole movement?

LD: I wrote an undergraduate paper on the hemp passive house. My studies had shown me it was possible. During my visit to the amazing Nauhaus in North Carolina, I saw it leap large up from the earth. In Ireland, James Byrne also designed and built an amazing hemp



“Hemp just has to go through the rest of that product cycle until it becomes as boring as the rest of construction.”

“That's when we will know that any doubts or perceptions of incredibility no longer exist”

HEMP BUILDING

passive house. UKH are currently designing two houses for clients in Northern Ireland to passive house details and standards. But you know what? It's not a case of hemp adapting to the passive house concept. It's about the passive house concept adapting more to hemp-lime! That's what we are doing now. In the International Hemp Building Association (IHBA), we are working with the European Industrial Hemp Association (EIHA) with the EU Standards group to educate policymakers on standards for hemp blocks.

HT: It would seem that certain "smart" technology applications combined with hempcrete construction could yield maximum performance with respect to both carbon emissions and energy efficiency.

LD: Ha! Yes and no. Let me tell you about one of those houses in Northern Ireland we are designing at present. Among the things I do — and let's just say, it's a skill I have that's a lot more advanced than my guitar picking — I work in Britain and Ireland for retrofit and new house energy coordination and certification with energy performance standards. When I ran the numbers on the Northern Ireland hemp-lime house, it is so highly insulated, the client and I worked out it needs little more than a wood-burning stove with a back boiler to heat the home.

But the regulations don't allow for that! How crazy is that? A hemp-lime house is too good! They want us to put in electrical heating because they come with a regulator and/or timer.

So that's a case of us having to provide for unnecessary technology because hemp construction is too advanced and regulations haven't caught up with it yet. The client there may also put in some solar photovoltaic panels, but he just wants to build the house first.

Regarding a situation where you decide you need more advanced technology such as heat pumps, for sure they are extremely well integrated with hemp-lime construction. Smart weather compensation on the outside unit of the heat pump will tell the controller when and how to switch on and get indoor temperatures back up to set point. With a material with slow decrement delay like hemp-lime, that means your compressor will have to turn on less often. The result is the running cost of your heat pump will be lower.

In UKH we often subcontract to clients the services of the leading expert for dynamic simulation modeling for

hemp lime-constructed houses in Britain. With years of experience and real-site data built into the model, we can provide a predicted lifetime energy and carbon use datasheet to clients that empirically shows that O&M costs will be lower with a hemp-lime building. This is often convincing to clients building a bigger home. As Alex Sparrow likes to say, "Can you afford NOT to build with hempcrete?"

Our partner, Mura Canning came up with a tag: "Biobased solutions that don't cost the earth."

HT: Where do you see product development regarding hempcrete and hemp fiber insulation; what's happening now; where do you see it going?

'We are only scratching the surface of the retrofit wave in Europe'

LD: As said above the main applications are likely to be labor and cost-saving construction models BEFORE the building site. So modular and pre-framed cassettes etc. Chloe Donovan and Mike Lawrence's amazing natural building system has a lot of promise there.

However there is still much work to be done in several areas. These include the development of ultra-low-carbon binders (which I've concentrated on with my own research work, and under the inspiration of the great Steve Allin who has shared his binder recipes to further science).

HT: Talk about application techniques; spraying, infill, bricks, blocks and the relative strengths and weaknesses of each.

LD: I have a lot of time for blocks because I feel they are more adaptable to how the majority of homes are built today. However, spray has great potential as well, not only in modular construction but also in more mass-scale retrofit of old barns and stone houses. We are only scratching the surface of the retrofit wave in Europe at the moment. Infill has a place there too. But rather than talk about weaknesses or strengths, it's more about what is the best solution for the project, for the client, for their time horizon and for their budget.

If a person has access to labor, and/or skills in construction, infill is just as good as anything else. But the time horizon has to be there to allow for drying etc. and

then the finishing trades.

Blocks just allow a lot more flexibility to the build cycle and this is important for many.

HT: What is the importance of standardization to the construction industry, and what standards are crucial for hempcrete to meet.

LD: Certification is germane to construction now for many reasons. Let's just look at one.

Take Grenfell for one example, where there was apparent certification in place but it was bullshit! It wasn't worth the toilet paper it was written on! Now it might seem like I'm contradicting myself a little there, but, in fact, what I mean is that robust certification has to be in place. Architects and professionals want to specify biobased but they also want to specify with confidence. So hempcrete has to be better than everything else. We already know it is anyway, but we have to have that written down and tested and have it on a sheet somewhere so that when the energy certification or building control guy like me comes around with his clipboard, there it is and I file it.

That is why in UKH we have developed a suite of services that starts with the customer along every stage of the journey. It's why we emphasize to clients that they can use any type of binder or block they want (and we supply most of them) but that these ones over here are the ones we most strongly recommend.

That's because they come with a suite of data, tests, regulations, and standards. More importantly, when the ISOHEMP blocks you ordered from us come on-site, they won't all be different sizes and irregular. And how do we know this? Because we went out to the state of the art factory in Fernemont and we saw their quality assurance processes at first hand.

I could talk more about risk assessment, and mitigation, as well as insurance, but as those topics aren't very interesting really, I'm going to stop. But that's just it isn't it? In hemp construction, we sometimes downplay the value of such things. Look here: I am almost doing it again!

Hemp just has to go through the rest of that product cycle until it becomes as boring as the rest of the construction industry. That's when we will know that any doubts or perceptions of incredibility no longer exist. When it's so standardized that no one even asks about it anymore. When Joni Mitchell brings out an updated version of Big Yellow Taxi and it goes: "They paved paradise, and put up a hempcrete EV parking lot."



Cretes Unveils New Innovation Hub for Fibre Processing

Cretes, a leader in natural fibre processing machinery, has opened the Cretes Technology Centre (CTC) in Wielsbeke. This cutting-edge facility allows customers to test their own materials and see Cretes technologies in action.

Focus on Flax and Hemp

The CTC specializes in processing bast fibres like flax and hemp, as well as byproducts such as shives and tow. With a working width of 1500mm, the centre replicates full-scale production lines to give customers real-world insights.

A Complete Production Line Experience

"We simulate an entire production line here," says CEO Stefaan Declerck. "This lets us demonstrate our machines' capabilities, from capacity tests to quality analysis." Customers can explore how Cretes solutions work for their specific fibre applications.

Flexibility and Customization

The CTC's modular design allows it to adapt to the unique needs of each customer, whether for textiles, construction materials, composites, or automotive applications. This versatility is key, especially for diverse uses of hemp fibres.



Our demo lines let us demonstrate our machines' capabilities, from capacity tests to quality analysis.

Sustainability at its Core

The CTC isn't just about technology—it's a statement on sustainability. The building's walls are constructed using hemp-based blocks from Belgian company Isohemp, highlighting Cretes' commitment to the circular economy.

Since opening in March 2024, the CTC has already hosted successful tests for clients from Belgium, France, Germany, the USA, and even China.

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[advertorial]



‘Exponential sustainability’

Hemp and circular economy at heart of UK housing development project

Industrial hemp will play a role in an advanced UK housing development designed to address “whole-place carbon footprint,” according to developers of the project, located on a 7.9-hectare tract in southeastern England.

The site, a former industrial area in East Sussex, will be transformed into The Phoenix, envisioned as the UK’s most sustainable neighborhood, according to Lewes-based Human Nature, a development company that promotes “exponential sustainability.” The company was founded by former Greenpeace directors Michael Manolson and Jonathan Smales.

The project, within the South Downs National Park, is planned as a walkable environment that includes 685 homes, an electric car charging hub, public squares and gardens, community buildings and a river walk, Human Nature said. It recently received planning approval.

Reducing carbon: The “whole-place” carbon strategy seeks to reduce “operational carbon” from heat and power as well as “embodied carbon” from materials and construction, and includes emissions caused by transport and human behavior on the site to the year 2100.

Human Nature’s in-house design team, design agency Periscope, Ash Sakula Architects, Mole Architects and



Old industrial buildings on the site in East Sussex.

Arup have created plans that embrace circular economy principles that include construction based on prefabricated “cassettes” made from local timber filled with hemp and other biomaterials. Where possible, existing materials from the site’s industrial past, including cladding, steel trusses, bricks and buttresses, will be salvaged and repurposed, according to the developers.

The project also intends to meet “radical affordability goals” through on-site recycling, waste management and composting facilities, urban farming and community gardening, and a renewable energy system that will reduce residential energy bills by 10-20%.

‘Joy’ in sustainable living: “The current mainstream model of development is catastrophic, baking in deeply unsustainable fabric, infrastructure and transport, fueling the climate and nature crises; it also creates social divisions and exacerbates loneliness,” said Smales, Human Nature’s CEO. “We aim to show that living sustainably can be a joy, not an exercise in self-denial, made far easier by the design of neighborhoods.

“The result won’t feel unfamiliar, rather a return to traditions we’ve forgotten: a place of elegantly designed buildings made using local materials, streets safe for children to play in, with most daily needs met within a short walk and where it’s easy to meet and socialize with your neighbors,” Smales said.

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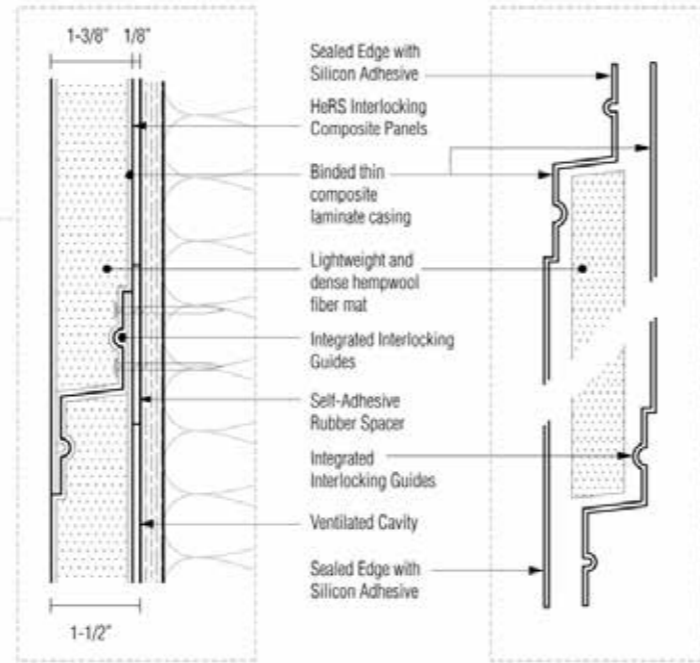
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Right for retrofit

Development of insulating siding is goal of \$1.5 million project

Researchers at a New York engineering school say they are developing siding insulated with industrial hemp for the remodeling of buildings to improve energy efficiency and reduce the carbon footprint of the built environment.

The research team, from Rensselaer Polytechnic Institute (RPI), Troy, NY, hopes to create a commercially viable, durable, and low-embodied-carbon insulated siding product in a three-year program financed with a \$1.5 million grant from the Buildings Energy Efficiency Frontiers and Innovation Technologies (BENEFIT) program of the U.S. Department of Energy (DOE).

RPI faculty will work with industry partners in creating a Hemp Retrofit Structural Insulated Panel (HeRS) designed to lower heating and cooling costs for homeowners that is easy to install.

Economic potential

HeRS will use a dense mat of hemp wool fibers bonded with a recycled binder that has a similar form factor and attachment method to existing siding materials, according to an RPI press release. The finished product will

have a minimum R-5 thermal performance to reduce heating, ventilation, and air conditioning energy use by 15%-25%.

“By utilizing this versatile and renewable crop in building materials, we can create a building retrofit product that will not only be beneficial for homeowners and the environment but also has the potential to jumpstart regional circular economies throughout the United States based on renewable materials,” said Alexandros Tsamis, associate director of the Center for Architecture, Science and Ecology at Rensselaer who is leading the project.

According to the DOE, residential buildings account for 60% of the total built surface area, with over two-thirds of those dwellings being single-family homes.

Part of the Seed to City hemp initiative at RPI, the hemp siding project stems from previous research from Tsamis and Daniel Walczyk, a professor of mechanical engineering, on the use of natural fibers as a resource for sustainable construction, such as hemp in rebar.

In addition to creating the design and manufacturing plans for the siding, the research team will conduct a viability study for supply chains that will

demonstrate how quantities of hemp fiber produced in the United States can be effectively integrated into the production line of HeRS.

Industry partners

Industry partners on the project are Durasip, a Texas composites producer; Idaho-based hemp building materials maker Hempitecture; and Introba, Oakland, California, a designer of housing systems, according to the press release.

BENEFIT funding from the DOE supports the government-wide approach to the climate crisis by helping buildings to improve their energy efficiency and demand flexibility in a cost-effective and equitable manner. The winning projects were chosen through a competitive selection process that rigorously evaluated applications on their technical merit.

The award is issued through the DOE’s Office of Energy Efficiency and Renewable Energy, which has a mission to accelerate the research, development, demonstration, and deployment of technologies and solutions to transition to net-zero greenhouse gas emissions economy-wide by no later than 2050.



Tribal leaders said the facility can process up to 2,500 acres of hemp annually.

Growing to build

Minnesota tribe gets fiber processing factory up and running

A new hemp fiber processing facility opened by a Minnesota Native American community will need to source hemp crops from outside of tribal lands to make the factory operate efficiently, according to a project leader.

Minnesota’s Lower Sioux Indian Community opened the decortication facility with a ceremony in September. The tribe said it intends to grow and then process fiber hemp into building materials to meet a shortage of about 100 homes on the reservation.

Former tribal council member Earl Pendleton, who has explored options for developing sustainable homes for the Lower Sioux community, said housing needs propelled the idea, but the prospect of economic growth and outside partnerships also spurred the project.

The facility is located in Morton, Redwood County, Minn., adjacent to the Sioux reservation in the southern part of the state.

Hemp farmers needed

Tribal leaders on the housing project told Minnesota Public Radio that the facility can process up to 2,500 acres of hemp annually. The tribe has only 500 tillable acres on its land and can grow only about 100 acres of hemp a year,

Danny Desjarlais, a tribal member and manager of the hemp construction project, told Lancaster Farming.

“We don’t have enough acreage here in the community to be able to fulfill the need to build these houses,” Desjarlais said.

“We’ll always be needing the local farmers in the area to produce the hemp,” according to Pendleton. He envisions a circular economy model in which the tribe farms hemp and uses the hurd to build affordable, energy-efficient homes made of hempcrete for the Lower Sioux community, but also sells products outside of the reservation.

Multi-million \$ project

The Star-Tribune reported the investment at \$2.3 million in a 10,000-sq-ft facility.

A report earlier this year by ENR Midwest, a regional business-to-business news website that covers the construction and engineering industries, estimated the project was to invest \$6.2 million for a 20,000 sq ft facility. Desjarlais said the tribe has planned Phase 2 of the project to add another 10,000 feet to the factory.

The factory is financed by money the community raised from its existing hemp program, sustainability grants, and loans,

including a \$1.5 million grant from the Minnesota Department of Employment and Economic Development.

Desjarlais told the Star-Tribune the facility is probably “ahead of the market,” and likely will be unprofitable for the foreseeable future, suggesting the tribe will continue to depend on government grants until demand emerges.

First house is built

The tribe recently completed its first hempcrete house using materials from outside the reservation. The first two occupants have already moved into the duplex, believed to be the first of its kind in Minnesota. More dwellings are planned for construction in the next spring and summer months, Desjarlais said.

The Minnesota Lower Sioux Indian Community, also known as the Mdewakanton Sioux, is a federally recognized tribe whose lands are located near the Minnesota River. The 1,473-acre reservation is home to more than 1,100 residents. Farms on the reservation grow traditional crops such as corn, beans, and squash.

The tribe’s primary source of revenue now is Jackpot Junction Casino, a major employer that funds essential tribal services like healthcare, education, and social programs.

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Gear driven, Durable parts
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Dimensions: 80cm X 200cm X 125cm (32" X 79" X 49") Weight:
260kg/575 lbs



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Building Green Roots

Emerging standards elevate hempcrete's role in sustainable design, carbon capture

Cameron McIntosh is co-founder of Americhanvre Cast Hemp, a Pennsylvania hemp building company that is the exclusive U.S. licensee of the Baumer Ereasy Spray Applied Hempcrete system of France. McIntosh, who has a background in operations management, was a co-author of the recently approved International Residential Code Council's appendix on hempcrete. He is a former member of the board of directors and corporate sponsor of the US Hemp Building Association, and a current member of the board of directors of the Pennsylvania Hemp Industry Council.

HempToday: What's really needed to get hempcrete construction more firmly into the green building movement and into the broader construction industry?

Cameron McIntosh: Testing, documentation and education are the easy answers, but there is a modern path for renewable, annual agricultural, plant-based materials like hempcrete to follow. Environmental product declarations, or EPD's, are a mechanism for formally establishing the actual carbon sequestration value of a given construction material in a language that allows for those carbon benefits to be formally recognized by design professionals who specify construction materials.

In order to have robust EPD's, we must first have Product Category Rules (PCR's) that define the parameters for creating an EPD for an individual product. In the northeast, a movement has sprouted, led by MASS design group and New Frameworks, to rally multidisciplinary stakeholders around the effort to establish annual renewable plant-based materials like straw and hemp in the American construction vernacular.

This effort is underpinned by another led by the California Strawbale Association, or CASBA, on the West Coast, who have undertaken the effort to rally those

same stakeholders around the creation of PCR's for these types of materials. These efforts are aimed at growing awareness/education and definition around sustainable building materials via collaboration across the various input material types with the common threads of sustainability, renewability and carbon sequestration. This type of collaboration is new in the green building space and is just exactly what we need to ensure that this renaissance of renewable and carbon-sequestering materials continues to build momentum, to the benefit of humanity and our planet.

HT: How far are we away from getting hempcrete into commercial code applications? How much time? How many years?

CM: We really are on the precipice of completing the work to be recognized by international commercial code with one of the largest (and most expensive) dominos falling here with our ASTM E-119 fire under load testing. This grant will allow us to create the first U.S. data points on the performance of a hempcrete wall assembly in a full-scale test for E-119.

Although the method and material will be specific to the Ereasy system, for



“All businesses in the industrial hemp industry need to be athletic to survive.”



all intents and purposes it will be the first full-scale demonstration of hempcrete via this testing. It is difficult to put an exact timeline on hempcrete being recognized in the IBC, however, USHBA has continued to work with the same group of consultants engaged for the original IRC submission – Martin Hammer, David Eisenberg and Anthony Dente – to formulate our approach to translating that work into the IBC. According to this group of consultants, the ASTM E-119 testing is the most critical next step in this line of work.

HT: Who are your clients and how did they come to you? Are there common characteristics or attitudes among those who have come to understand and appreciate hemp as a building solution?

CM: Many of Americhanvre's clients can be categorized as motivated, capable homeowner builders who have taken it

upon themselves to manage the construction of their new home. As such, they are able to save a good deal of money in being their own general contractor, however, this often costs them in terms of the time it takes to complete the home.

Although they are their own general contractors, our clients do subcontract for aspects of the build that are outside of their capabilities, such as installation of the hempcrete via the Eready system. Most all of our clients are drawn to the performance and cost of ownership benefits with material health as their second largest motivation.

Surprisingly, they do not often fit the mold of being categorized as “cannabis enthusiasts” – they have diverse professional, and even religious, backgrounds and are drawn to the tangible benefits of the material, not just the sex appeal of hemp!

HT: What percentage of your projects are retrofits, and what percentage are new builds? What do you consider your marquee projects in each category? Briefly describe those, please.

CM: I would say that the majority, maybe 80%, of our installations are for custom, one-of-a-kind, new build residential homes and that 20% are for retrofits of varying scope and size. Our Eready system owner-operators, Hall & Moskow, in Newburyport, MA who have utilized the system in conjunction with a full-section, tilt-up panel construction method of their own design for a twelve-unit apartment complex would have to be the marquee new build project for Americhanvre. This is a first for the U.S. hempcrete building scene as essentially the first commercial residential hempcrete project – which further adds proof of concept and viability for the material in commercial construction with modern, high-performance, off-site construction techniques.

Conversely, our most notable retrofit project would have to be the Project PA Hemp Home installation for the DON group of companies in New Castle, PA. This project was funded in part by the PA Department of Agriculture as an examination into the viability of hemp as a new commodity for PA farmers and also as an examination of the performance of the material for low-income, state-subsidized, affordable housing and whether or not it has the ability to create homes that are, in fact, more affordable to own and operate.

HT: Talk about the Eready system from beginning to end. What are the key aspects of the technology and the building process that make it all work?

CM: The most critical aspect of the Eready system in comparison to other spray-applied hempcrete systems on the market in Europe is that the materials are pre-mixed and introduced to the system wet, as opposed to combining at the end of the lance. This offers a few key advantages over the other existing systems, mostly related to the consistency of the mix ratio and the placement density. It also allows for the rebound (any material that blows around and doesn't stick) and excess material scraped off the wall in the leveling process to be incorporated directly into the mix.

The pre-mixed hempcrete mixture is drawn through the system to the lance, pneumatically, via a 375cfm air compressor, making it the fastest, most consistent and least complex system for spray application of hempcrete. This is evidenced in our finished work upon visual inspection of the completed structure where it is impossible to identify starting/stopping points and variations in the mixture ratio.

Although the binder for the Eready system is proprietary, it is the most lite-weight binder to hurd ratio on the market and ultimately the most cost-efficient – other spray systems can work with multiple binders, yet they consume dramatically more binder and are overall less efficient. Eready spray applied hempcrete also tends to cure more quickly, further condensing project sequencing times.

HT: You've said you run a lean operation. When it comes time to jump into a project, where do you source the labor and how do you manage that work?

CM: Many of our projects have been completed with labor provided to me by the homeowner, general contractor or by colleagues of mine in the space. The way we have adapted the Eready system to be used in the U.S. makes it so that I have been very successful at quickly training a team of three workers to support me in running the equipment for a successful install.

With the exception of the lance operation (typically my job), all three of the other jobs required to run the machine require little to no operator experience. So, because we are using factory-weighed bags of hurd and lime in a one bag-to-bag ratio, a large capacity hydraulic mortar mixer with a water distribution bar and metering system, and because the other two jobs beyond mixing and spraying are as simple as raking and shoveling – we have trained well over 100 individuals on various projects to support me in running the equipment.

It took time and input from all of the people who have helped to run the machines – many of whom are seasoned professional laborers – to optimize the worksite and equipment package, but we really have made it as simple as possible

to run this equipment with a crew of just four people. Also, we have worked closely with colleagues in the space to join together and execute projects – perhaps none more than our colleagues from Massachusetts, Hempstone – and have been able to build a network of reliable subcontractors and colleagues who are capable of supporting us on projects.

All businesses in the industrial hemp industry need to be athletic to survive, and by keeping our own overhead costs related to labor low, we have been able to pass those savings on to our clients who are already facing increased upfront costs when specifying the material.

HT: Is spraying hempcrete the most efficient way to apply the material? Can you talk about the economics of Eready, say, compared to form infill method? Preformed blocks, bricks or wall units?

CM: We have examined our own data from spray application installations versus cast-in-place projects and have found that, despite what seems to be higher material costs up-front (they are not, in reality), the Eready system represents a 20-30% reduction in overall costs versus traditional hand casting on site. This is primarily due to the speed of the installation and the overall reduction of person-hours on site. For example, a 2,700sq ft timber framed home with a forty-foot gable was able to be sprayed by a team of four persons in about eight days, whereas this same installation would have taken anywhere from 4-6 weeks with a crew of five or more to complete by hand.

Comparing the spray application system to pre-cast elements is a bit more difficult, but you have to remember that even a block or panel still requires labor to create and, more importantly, time in storage to cure before installation. We have explored the Eready system in combination with both pre-cast block and panelized systems and have found that the methods are complementary. Whether the system is used to spray apply pre-framed panels in a controlled environment, or on-site in combination with hempcrete blocks, it really does help to condense project sequence times and reduce overall labor and costs.

Now, where I believe the spray application has excelled in the U.S. construction market is in its adaptability to various wall construction details and its compatibility with American construction techniques. Spray application of hempcrete on-site really does interface more effectively with our current construction techniques and methodologies, and we have pursued opportunities to demonstrate and expand upon that flexibility with multiple combinations of techniques and on a variety of wall details for both new construction and retrofit.

U.S. builders say new standards can help push hempcrete into mainstream

The hemp building sector in the United States is on the cusp of significant progress in 2024, driven by the official inclusion of hempcrete as an approved building material under the International Code Council (ICC) and ongoing efforts to standardize the use of hemp-based materials.

According to the U.S. Hemp Building Association (USHBA), these developments mark a critical step toward the goal of making hempcrete mainstream in American construction.

Residential approved

The ICC's decision to include hempcrete as a non-load-bearing building material in its International Residential Code (IRC) update, effective this year, is a major milestone. This approval means that hemp-lime mixtures can now be used for wall infill in residential structures such as one- and two-family homes and townhouses in jurisdictions that adopt the IRC standards.



This change offers a clear path for builders and architects to specify hempcrete in building permit applications, which could significantly increase its adoption by reducing uncertainty for contractors and streamline the construction process.

While hempcrete's inclusion in the IRC is a pivotal development for residential construction, efforts are also underway to expand its use in commercial projects.

The USHBA is preparing a guide that will outline specifications for using hempcrete in commercial buildings. This guide, set for release in 2024, will include boilerplate language for architects to include in bid documents, making it easier for hempcrete to be integrated into larger projects.

USHBA is also working to have hempcrete recognized under the International Building Code (IBC), which governs commercial structures. These standards are expected to be updated in 2025, and if successful, hempcrete could become a viable material for commercial buildings across the U.S.

Standardizing hurd

In addition to hempcrete, the USHBA is focusing on setting standards for the production of hurd, developing temporary guidelines for processors that will ensure consistent, building-grade hurd suitable for construction projects.

Testing at North Dakota State University and Oregon State University is expected to establish the necessary quality standards, including parameters for size, dust levels, and fiber content in hurd. Processors that meet these standards will be able to market their materials as USHBA-approved, offering builders a reliable source of hemp hurd for their projects.

As hempcrete gains regulatory approval, there is a growing need for processing facilities capable of producing high-quality hemp hurd from hemp straw. A number of new and expanded processing plants are expected to come online in the U.S. in 2024, further bolstering the supply chain for hemp-based building materials.



International group joins UN construction alliance to advance hemp as green building solution

The Federation of International Hemp Organizations (FIHO) has joined a United Nations program through which it will work to position hemp as a source of sustainable building materials.

FIHO joined the Global Alliance for Buildings and Construction (GlobalABC), which is advancing carbon neutrality for the built environment through major international activities, including annual meetings of the Conference of the Parties (COP), the decision-making body of the UN Framework Convention on Climate Change.

Promise in biomaterials

“More and more companies in the world are developing hempcrete and other biomaterials for new buildings as well as refitting existing buildings at a reasonable price and with locally developed products,” FIHO said in a press release, underscoring the hemp plant's ability to absorb CO2 in the field, and hempcrete's ability to lock it up.

GlobalABC develops policy and technology guidance for the construction industry, addressing the sector at the global, regional, national and municipal levels. The Alliance tracks progress in decarbonization of the sector through its annual Global Status Report for Buildings and Construction, and its Global Building Climate Tracker.

'Showcase' for hemp

“Global ABC will allow Hempcrete producers to showcase their products, develop contacts with other stakeholders including farmers, processors, architects, building companies and urbanists to share research findings and more,” said Ted Haney, FIHO Chairman.

Global ABC's 2022 edition of the Global Building Climate Tracker report indicates that the construction sector remains off track to achieve decarbonization by 2050.

Running behind

“The gap between the actual climate performance of the sector and the necessary decarbonization pathway is widening,” according to the report. “The lack of structural or systemic decarbonization improvement in the building sector leaves its emissions reductions vulnerable to external factors.”

In 2021, the buildings and construction sector accounted for around 37% of energy- and process-related CO2 emissions, and over 34% of energy demand globally, according to the report.



Food
Standards
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Waiting game

UK officials are trying to work their way through a deluge of applications

The approval process for CBD products in the United Kingdom remains a challenging and slow-moving ordeal as the Food Standards Agency (FSA) struggles to process the large volume of applications in a market that could reach \$1.22 billion (£1 billion; €1.15 billion) next year, according to some estimates.

Only a small portion of the thousands of CBD product applications have made it through the FSA's approval process for new or "novel" foods. According to the latest figures from the agency's official website, more than 12,000 CBD products have been submitted for review, but just over one-fourth, roughly 3,500, have been "validated" and remain in contention.

Of those, fewer than 50 have been fully authorized for sale in the UK market.

FSA under fire

The agency has come in for sharp criticism as the process has unfolded. Early this year, the trade group Association for the Cannabinoid Industry (ACI) issued a white paper that called the FSA review "protracted, punctuated by U-turns and . . . undertaken without any discernible coordination between the responsible authorities."

At the time, ACI called on officials to clear up "existing ambiguities" and act quickly to implement specific provisions by last April 2024, but it appears little has happened since then.

The backlog of applications has presented a significant challenge for the FSA, which has cited limited resources and the complexity of reviewing each

individual dossier as reasons for the slow pace. Moreover, many dossiers have been found lacking in critical areas such as toxicology data, which has further delayed the approval process. This has left a vast number of companies in regulatory limbo, with many likely to wait years for approval.

Novel food process

When the FSA announced in 2020 that all CBD products would require a validated food safety application to remain on the market, it set off a scramble by companies to convince the agency that their oils, tinctures, cosmetics and edibles products are safe. Estimates put the current UK market value at \$850 million (£690 million/€798 million).

Under the "novel" designation in the UK, new foods must undergo a strict safety evaluation before they can be legally sold. The novel food policy applies to CBD because the compound has no significant history of consumption in Europe. The European Union's Novel Food Regulation (EC) No. 258/97 requires that foods or food ingredients that had not been significantly consumed by humans within the EU prior to May 15, 1997, undergo a safety assessment before they can be sold. The UK retained the policy following Brexit, and introduced its own novel food approval process through the FSA, which took effect in January 2021.

First, companies submit a dossier that includes detailed information about the product, including toxicology studies, ingredient sourcing, and manufacturing processes. The dossier must provide evidence that the CBD product is safe for human consumption and meets

the FSA's novel foods standards. If the dossier meets the initial requirements, the product enters the validation phase, where it is formally assessed for safety, efficacy, and compliance with food safety regulations.

Once validated, a product can remain on the market while awaiting full authorization. However, if the dossier lacks adequate information or raises safety concerns, it can be rejected or sent back for further clarification. Only after passing through all these stages can a product receive full market authorization.

Next for UK CBD

With demand for CBD in the UK, the FSA, industry stakeholders continue to push the agency for greater transparency in the approval process and more support from regulators to help companies navigate the complex requirements.

Stakeholders are also urging the FSA to relax some of the more stringent requirements around toxicology and testing, particularly for products with a long history of safe use. However, the FSA has been clear that safety remains the top priority, and it is unlikely to ease its standards anytime soon.

For businesses, the uncertainty surrounding CBD product approvals is a double-edged sword. On one hand, companies with fully authorized products stand to benefit from reduced competition as unauthorized products are forced off the shelves. On the other hand, the slow pace of approvals means many legitimate businesses are left waiting in regulatory purgatory, unable to fully capitalize on the growing market demand and at risk of failure.

Meanwhile, out in the Wild West

California ban exposes fallout from CBD cowboys' reckless tactics

To see the devastation cowboy CBD producers and their handmaidens in the "intoxicating hemp" business have brought to the industry, have a look into California. That's where the emergence of the illicit concoctions has led to restrictions not only on "diet weed" made from hemp, but also on CBD and other cannabinoids.

Gov. Gavin Newsom's new emergency ban, which took effect last week after it was approved by California's Office of Administrative Law, prohibits ALL hemp products with any "detectable amount of total THC," and limits even non-THC hemp products to five servings per package under a 21-and-older age restriction.

It's another sad milestone down the ever-winding path for industrial hemp, where we have stopped along the way to shoot ourselves in the foot.

When the 2018 Farm Bill legalized industrial hemp, it ushered in a "golden age" for CBD – relatively unknown before that time – that promised health benefits without the "high" associated with THC – and riches for investors and entrepreneurs.

Predictably, the CBD Gold Rush came crashing down shortly thereafter, driven by hype that led to an oversupply and the death of 90% of companies operating in the space, according to some estimates.

To be sure, regulatory uncertainty, inconsistent legal frameworks and a dithering FDA contributed to the crash. But let's face it: CBD's calamitous introduction was driven by greed more than anything else.

Panacea

When consumer trust eroded amid a lack of any medical evidence to back up claims that CBD could treat everything under the sun – anxiety, depression, PTSD, schizophrenia, bipolar disorder, autism spectrum disorder, ADHD, chronic pain, arthritis, back pain, multiple sclerosis, inflammatory bowel disease, migraines, acne, eczema, psoriasis, anti-aging, heart disease, high blood pressure, stroke prevention, diabetes, weight loss, obesity, lupus, Hashimoto's thyroiditis, rheumatoid arthritis, irritable bowel syndrome, gastroesophageal reflux disease, nausea, opioid addiction, nicotine addiction,

alcoholism, insomnia, sleep apnea, restless leg syndrome, cancer treatment, cancer-related pain, chemotherapy-induced nausea, menstrual cramps, endometriosis, infertility, asthma, chronic obstructive pulmonary disease, Parkinson's disease, Alzheimer's disease, autonomic dysfunction (dysautonomia), and chronic fatigue syndrome(!) – the honeymoon was over before it truly got started.

Cooked up

What followed has added insult to the crash injury. To shore up their failing businesses, the sharp CBD players still in business slithered to the bottom of the barrel, where they discovered another vein of gold – synthetic compounds that can be cooked up from hemp-derived CBD in the lab to give an effect similar to that of marijuana, including many that are specifically marketed to kids – in kiddie-type packaging on shelves in every convenience store between home and school.

All technically "legal" because of a loophole in the 2018 Farm Bill that allowed for all parts of the hemp plant including downstream psychoactive products not anticipated by lawmakers.

So what started as exploiting the grey area in hemp regulation has now become a runaway problem.

CBD ≠ hemp

Along the way, "CBD" has become synonymous with "hemp" in the public's mind. And that may be the biggest tragedy because it ignores the phenomenal potential of hemp seed for food, and fiber from the plant's stalk – much greater long-term opportunities than some synthetic weed cooked up in the bathtub. By opening up the Pandora's Box of "intoxicating hemp" substances, those who popped the lid have not only jeopardized their own future but severely



undermined decades of work by industrial hemp producers to clearly define their non-intoxicating products in the context of cannabis generally.

Gun, meet foot

Nowhere is this fallout more apparent than in California, where the new regulations should serve as a warning to the entire hemp industry: reckless greed and shortsightedness will not go unpunished. In addition to banning the intoxicants, and the age and packaging restrictions, the California rules require that edible hemp products contain no detectable levels of THC or other cannabinoids.

Make no mistake about it: California's newly imposed restrictions are a direct consequence of the unfortunate trend of intoxicating hemp products. The state's intention is clear: protect public safety, particularly that of children.

By helping intoxicating hemp products to infiltrate the market, these sell-at-any-cost producers have essentially ushered in the heavy hand of government regulation – something many of them fought hard to avoid when seeking legalization. They've not only tarnished their own reputations but have also caught the legitimate CBD market in the crossfire.

Ripple effect

Of course, California is not alone in its crackdown. Other states are following suit, with many implementing or considering laws to regulate or ban intoxicating hemp products. The situation in the states runs the gamut. Some have made the products illegal entirely; some treat them as legal but unregulated. In some states, consumer regulations apply and in others, they are treated like marijuana.

While these states are mainly focused on psychoactive hemp products, the regulatory ripple effect is hitting CBD upstream, and the broader hemp industry. As more states adopt restrictive measures, the boundaries between hemp, CBD and intoxicating hemp products continue to blur in the eyes of lawmakers and the public. What was once a promising sector, with CBD positioned as a wellness product, is now being dragged down by association – again – with hemp's psychoactive cousin Mary Jane.

One California producer told us:

“Yup. My legit hemp superfood biz getting eaten up by Wild West hemp THC and D8 cowboys. I’m just tryn to feed my family.”

Self-inflicted

For veteran industrial hemp stakeholders, this trend is nothing short of a disaster. For decades, activists worked to educate the public and policymakers about the distinction between industrial hemp and marijuana. The message was starting to gain traction.

But the introduction of intoxicating hemp products has effectively erased that hard-fought distinction. The public is once again confused. Lawmakers, who were previously warming to the potential of hemp as a versatile, non-intoxicating crop, are now treating it with the same suspicion they reserve for marijuana. In their pursuit of profits, CBD producers and their partners in the intoxicating hemp space have set the entire industry back by years, if not decades.

What’s next?

As individual states stepped into the regulatory breach, the result is a confusing patchwork of rules that make it harder to distinguish legitimate CBD (and other hemp cannabinoid products) from those that might make you high, ultimately harming public trust and safety.

To be sure, the FDA’s prolonged delay in establishing clear regulations for CBD has significantly contributed to the current chaos in the market. The agency failed to set standards for over-the-counter CBD products while at the same time raising alarm by issuing warning after warning – eroding incentive in a promising new category.

Self-regulation among CBD producers cannot be expected. Even the legacy Hemp Industries Association has come down in support of what they euphemistically refer to as “cannabinoids,” by which they mean intoxicating hemp-derived substances.

Reflection

Moving forward, the hemp industry needs to take a hard look at itself. CBD producers and industry organizations must actively distance themselves from the intoxicating hemp space, educate lawmakers about the differences, and push for regulations that safeguard both public health and the legitimate CBD market. It remains a considerable one, even if all the rosy predictions haven’t proven accurate.



Japan’s approach to all cannabis dates to U.S. occupation after World War II.

New rules for CBD in Japan push distributors to the wall

CBD companies serving the Japanese market are scrambling to line up suppliers of “THC-free” formulations in anticipation of strict rules kicking into effect before the end of the year.

Japan recently set maximum THC limits for CBD products and the raw materials used to make them. In keeping with Japanese post-WWII cannabis policy, the limits are among the strictest in the world. For CBD products, the threshold for THC content is set at 10mg/kg (= 0.001% = 10ppm) for oils and powders, and even stricter limits apply to aqueous solutions (0.10mg/kg = 0.00001% = 0.1ppm) and food products (1mg/kg = 0.0001% = 1ppm).

Those limits are at least 200 to 300 times stricter than the threshold in most other countries with established CBD regulations, which observe a 0.3% THC limit for all product categories. Japan’s approach to CBD regulation reflects a strong aversion to THC, even at trace levels, consistent with its post-WWII stance on cannabis, which has included some of the most conservative policies worldwide.

Industry pushback and delays

Stakeholders and consumers organized petitions and lobbied government officials following the announcement of the new rules earlier this year, but their efforts resulted only in a delay rather than substantive change, pushing the rules’ start date to mid-December from the originally scheduled October launch. Although there is widespread public interest in relaxing restrictions on CBD in Japan, regulatory bodies remain resolute in maintaining strict THC limits due to concerns over public health and cannabis control.

Unique challenges

The new THC limits create unique challenges for foreign CBD suppliers that have already established a market presence in Japan. Companies like PharmaHemp of Slovenia, Elixinol and CBDfx from the U.S., Endoca from Denmark, and Naturecan from the UK are some of the global players claiming to offer THC-free products. It will be interesting to see how those claims hold up against Japan’s insistence on transparency and rigorous compliance.

Japan’s strict standards demand third-party lab testing with zero tolerance for THC, and these requirements come at a time when past issues in the industry have raised concerns about certification credibility. Many certifications in the CBD sector have been found to be unreliable or outright fraudulent, posing a serious risk to brands.

For companies that do not meet Japan’s standards, the implications could include reputational damage, lost revenue, and possibly a forced exit from the Japanese market.

Adjustments ahead

Japanese regulators’ commitment to enforcing these strict standards highlights the risks for CBD companies entering or already operating in Japan. The rapid expansion of CBD’s popularity globally has led companies to diversify their supply chains and product formulations, but meeting Japan’s standards may require entirely new manufacturing practices and added costs. Industry observers are closely watching how these regulations will affect the Japanese market’s growth, and the competitive landscape may shift as only the most compliant brands remain viable.

An unexpected punch

CBD may amplify – not dampen – effects of THC on ‘brain connectivity’

CBD did not prove effective in counterbalancing the effects of delta-9 THC on brain connectivity, and may heighten them, according to a recently published study.

Contrary to earlier research suggesting that CBD might tamp down THC’s psychoactive effects, the study found that adding CBD to THC not only failed to mitigate disruptions in neural connectivity but, in some cases, made them stronger.

Carried out by researchers from the University of Bath and University College London, the study, published in the journal *Neuropsychopharmacology*, found that a THC+CBD mixture could intensify disruptions in brain networks that are active during rest.

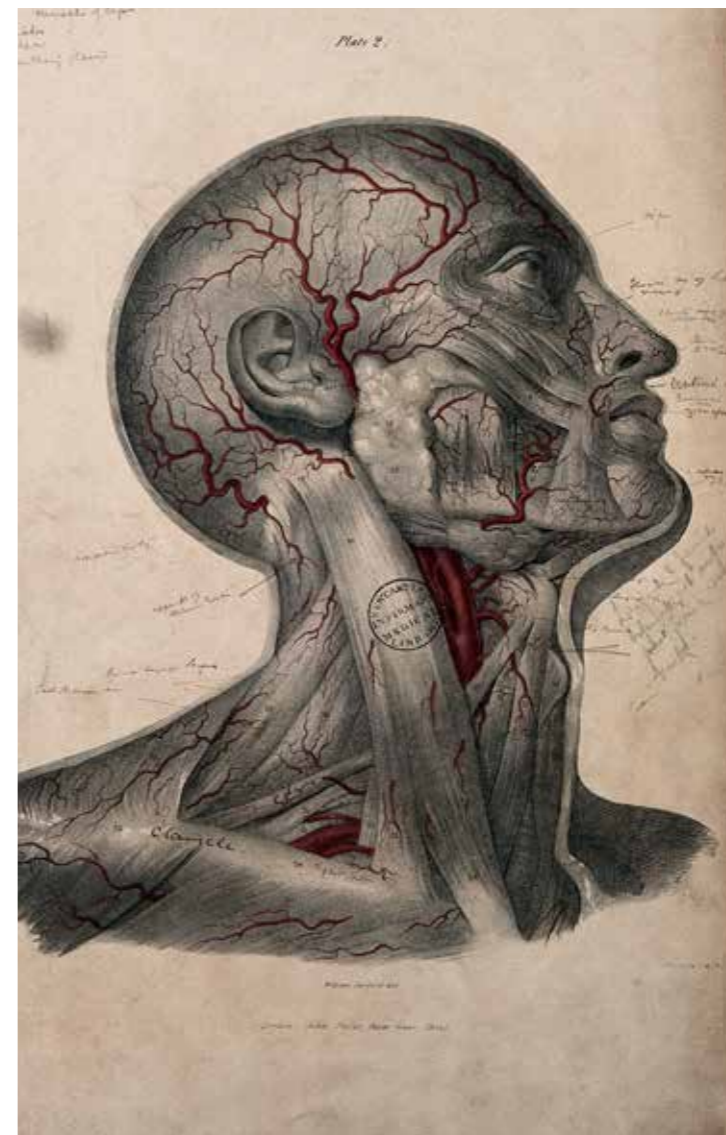
They vaped the stuff

The research team examined the effects of cannabis on the brain networks of adolescents and young adults using magnetic resonance imaging (MRI). Cannabis significantly disrupted functional connectivity in key brain regions responsible for day-to-day functions, decision-making, and memory, as well as areas responsible for processing emotions and important sensory information, the research found.

“Our findings suggest that CBD does not attenuate THC effects,” the study reported, “and in some cases, potentiated them.”

“THC+CBD reduced connectivity significantly more relative to THC alone,” the researchers observed.

The study involved 46 participants: 22 adolescents aged 16-17, and 24 young adults aged 26-29. Participants inhaled vaporized cannabis containing either THC, a combination of THC and CBD, or a placebo before undergoing MRI scans. Both THC and the THC+CBD combination led to significant decreases in communication between the key brain



networks studied.

Despite the rapid brain development that occurs during adolescence, the researchers found no significant differences in cannabis’ effects between adolescents and young adults.

“Cannabis causes similar disruption to resting-state connectivity in the adolescent and adult brain,” the study noted, challenging earlier assumptions that adolescents are more vulnerable to cannabis’ effects.

These findings suggest that CBD’s role in moderating THC’s effects may depend on dosage or other factors not yet fully understood. While CBD has been marketed as a therapeutic compound with potential benefits like reducing anxiety and addiction, this study underscores the need for further research,

particularly in relation to its interaction with THC at different concentrations.

Inform yourself

The implications of this study are significant for public health, particularly as more countries and regions legalize cannabis products with varying THC and CBD ratios. Many users opt for cannabis strains high in CBD under the assumption that they are safer or produce fewer negative effects. However, this study challenges that assumption and highlights the need for consumers to be better informed about the possible risks of combining THC and CBD.

“Given that public health guidelines often recommend using cannabis with high CBD: THC ratios, our findings suggest this advice may need revisiting,” the authors concluded. As regulatory bodies and health professionals develop guidance for cannabis use, understanding the intricate effects of THC and CBD on brain connectivity will be critical for creating safer consumption practices.

Assumptions

While CBD is generally considered to be a less harmful component of cannabis, its interactions with THC may be more complex than previously believed. The findings open the door to further investigations on how cannabinoids interact and their long-term impacts on the brain, particularly during critical developmental stages.

The authors said the study is intended to provide essential insights into the cognitive and neural effects of cannabis, informing both medical research and public health policy.

Neuropsychopharmacology is published by London-based Springer Nature on behalf of the American College of Neuropsychopharmacology.

A new front for CBD

Study shows Epidiolex may have potential as treatment for illness in vets

Epidiolex, the medical-grade CBD used to treat rare forms of childhood epilepsy, could provide relief to military veterans suffering the effects of exposure to chemicals in wartime, according to recent research by Chinese experts.

The findings, in a study of rats, suggest the drug might be an effective treatment for Gulf War Illness (GWI), a chronic condition suffered by veterans of Operation Desert Storm in 1990-1991.

“Long-term oral administration of CBD holds promise to alleviate cognitive and mood impairments as well as chronic pain experienced by veterans suffering from GWI,” the study observes.

CBD helped ease the blockage of pleasure feelings, and lowered the rats’ sensitivity to pain, according to the research. Also, rats administered Epidiolex showed improvements in recognizing objects and remembering locations, the study revealed.

Causes of GWI

Epidiolex, a high-CBD, no-THC formula, is approved by the U.S. Food & Drug Administration (FDA) as a treatment specifically for seizures associated with Lennox-Gastaut Syndrome, Dravet Syndrome and Tuberous Sclerosis Complex. It is also approved by the European Medicines Agency and the UK’s Healthcare Products Regulatory Agency. (The drug goes by the alternative spelling “Epidyolex” in Europe and the UK.) Canada’s federal health regulator, Health Canada, approved the medicine late last year.

GWI is attributed to exposure to various environmental hazards, including pesticides, chemical warfare agents, and medications administered during the 1990-1991 conflict in the Middle East, as well as the burning of oil wells.

The illness causes immune system dysfunction, inflammation, and damage to the nervous system. Veterans with GWI experience chronic fatigue, muscle and joint pain, gastrointestinal issues, respiratory problems, cognitive dysfunction, sleep disturbances and headaches.

More research needed

The researchers said the study is promising in light of previous research on other compounds with anti-inflammatory and antioxidant properties, such as cur-



One cause of GWI is exposure to burning oil wells in Operation Desert Storm.

cumin, melatonin, and monosodium luminol, which also showed benefits in alleviating symptoms of GWI. However, those compounds required relatively higher doses than CBD, indicating that Epidiolex may offer a more efficient solution at lower dosages. Lower dosages also reduce the risk of potential side effects and make treatment more accessible for patients.

Epidiolex effectively improved brain function at a dose of 20 mg/kg, which is roughly equivalent to a human dose of 3.2 mg/kg per day.

“CBD treatment could be a viable option either alone or in combination with existing treatments,” the study concluded, although researchers emphasized the need to rule out potential drug-drug interactions before widespread use.

With an estimated 25% to 32% of the nearly 700,000 U.S. veterans who served in the Gulf War affected by GWI, the number of veterans potentially suffering from the condition ranges from 175,000 to 224,000.

The study highlighted the need for more comprehensive research before conclusions can be drawn about the efficacy of CBD as a treatment for GWI. The study raised concerns about the potential for adverse effects, particularly the risk of suicidal ideation. Although the FDA has issued warnings about the

possibility of suicide in patients taking Epidiolex, those warnings are based on presumed effects rather than concrete data, the study noted.

CBD research grows

The study’s findings add to a growing body of evidence suggesting that CBD’s anti-inflammatory and neuroprotective properties may be beneficial for a wide range of conditions, including PTSD, another condition suffered by military veterans.

The study was carried out in a collaboration among academic institutions, industry research bodies and corporations that focus on military and civilian medicine and pharmaceutical research. The authors of the report, published on BioMed Central, a part of German Scientific publisher Springer Nature, are from the School of Basic Medicine at Qingdao University, the People’s Liberation Army’s Military Institute for Disease Prevention and Control, the School of Pharmacy at Qingdao University, and Jiangsu Kanion Pharmaceutical Co., Ltd.

The Chinese study comes after research in Japan concluded that Epidiolex failed to reduce the frequency of seizures in children in a critical Phase 3 trial.

Epidiolex is produced by GW Pharmaceuticals, a division of Jazz Pharmaceuticals, Dublin.



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- Business planning
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- Supply chain consulting
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- Media consulting
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To ease your mind

Trial shows CBG may reduce emotional stress, enhance memory

An American research team that claims to have carried out the first clinical trial of Cannabigerol (CBG), said the hemp-derived cannabinoid appears to reduce emotional discomfort, and may have some memory-enhancing effects.

The researchers, from Washington State University (WSU) and the University of California, Los Angeles (UCLA), looked at the acute effects of CBG on anxiety, stress and mood. A study reflecting the trial results was published recently in *Scientific Reports*, an open-access, online journal from Nature Portfolio, a scientific publishing group.

“CBG is becoming increasingly popular, with more producers making bold, unsubstantiated claims about its effects,” according to Carrie Cuttler, an associate professor of psychology at WSU who led the study.



Carrie Cuttler, an associate professor of psychology at WSU, led the study.

No miracles

While the WSU-UCLA study supports some of those claims, Cuttler urged caution. “We need to avoid claims that CBG is a miracle drug. It’s new and exciting, but replication and further research are crucial,” she said.

The study used Zoom sessions to conduct a double-blind, placebo-controlled trial with 34 cannabis users who first reported baseline ratings of anxiety, stress and mood. The subjects then took either 20 milligrams of CBG or a tincture containing a placebo, which were mailed out previously by the researchers. Asked to rate their feelings, the subjects said the hemp compound significantly reduced their anxiety 20, 45 and 60 minutes after ingestion.

Better recall

Cuttler said one of the most surprising outcomes of the study was CBG’s apparent effect on memory. Contrary to THC’s negative effects on memory, CBG enhanced recall of words from a list exposed to the subjects before they were administered the 20 mg dose. Those in the sample group were able to recall more words than those in the control group.

“We triple-checked to ensure accuracy, and the enhancement was statistically significant,” Cuttler said.

At the same time, the study found that CBG did not produce cognitive or

motor impairments or other adverse effects commonly associated with THC. Participants in the experimental group reported low intoxication ratings and minimal changes in symptoms such as dry mouth, sleepiness, heart palpitations and heightened appetite – effects normally associated with THC.

Cuttler said the findings align with survey data from a previous study she led that indicated 51% of CBG users consume the substance to decrease anxiety, with 78% suggesting it is better than conventional anxiety medications.

About CBG

While cannabis stakeholders have long been focused on developing THC and CBD, researchers and hemp breeders are now teaming up to better understand CBG, and developing CBG-rich cultivars. First discovered in the 1960’s, CBG, which is non-psychoactive, is not under international drug schedules, and is not considered a controlled substance in the USA.

CBG is known as the “mother” or “OG” cannabinoid, due to the fact that it is the precursor to all other cannabinoids, such as CBD (Cannabidiol), CBN (Cannabinol), CBC (Cannabichromene), and THCA (Tetrahydrocannabinolic Acid). It has also been called “the Rolls-Royce of cannabinoids” because it is costly to produce. The relatively low amount of CBG found in conventional cannabis plants means it takes thousands of pounds of biomass

to isolate even small amounts of the compound, meaning high prices to the end user.

Other benefits?

Previous non-clinical studies have suggested CBG may be therapeutic for glaucoma, inflammatory bowel disease and Huntington’s disease, and may inhibit tumor growth in some cases; it may also kill or slow bacteria and advance bone development.

Also, instead of inducing THC-like effects, CBG reportedly buffers the feelings of paranoia sometimes caused by over-ingesting THC.

The U.S. Department of Agriculture earlier this year approved a genetically modified variety of hemp designed to produce high levels of CBG while eliminating all THC and CBD. The new hemp variety, called “Badger G,” was developed by the University of Wisconsin’s Crop Innovation Center.

The European Commission last year added CBG to the EU’s cosmetic ingredient database (CosIng), clearing the compound as safe for use in health and beauty products.

Cuttler said her team is designing a subsequent clinical trial to replicate its findings, and to add physiological measures such as heart rate, blood pressure and cortisol levels. The researchers also plan to extend the study to non-cannabis users. Cuttler said she is also planning a study of CBG’s effects on menopause symptoms in women.

Eco killer

Hemp-derived CBD shows promise in zapping mosquito larvae

Hemp-derived CBD could prove to be an effective and environmentally friendly insecticide, according to a study by U.S. researchers. The study, published in the scientific journal *Insects*, showed that CBD can wipe out larvae in two troublesome strains of mosquitoes in their early stages of development – within 48 hours.

The research, led by a team at Ohio State University, marks a promising breakthrough in the ongoing fight against insecticide resistance, particularly in the case of mosquito species such as *Aedes aegypti*, which transmit deadly yellow fever, dengue, and Zika viruses.

“It’s very important to be able to control these pests at an early stage, when they are at their most vulnerable,” said Erick Martinez Rodriguez, a graduate student in entomology at Ohio State and lead author of the research report. He noted that targeting mosquitoes in their larval stage, before they mature and spread diseases over large distances, is critical for effective pest management.

Stubborn strains

The breakthrough comes as mosquito populations around the world are developing genetic mutations to ward off conventional insecticides, posing serious challenges for global control programs. One strain of *Aedes aegypti* – the Puerto Rican strain – has shown stubborn resistance to commonly used synthetic insecticides, which target the nervous system of mosquitoes.

CBD, however, has shown the ability to bypass these metabolic defenses.

The Ohio State researchers extracted CBD by pulverizing dried hemp leaves and soaking them in methanol to create a potent solution. The study found that even a small amount of CBD-rich extract was lethal to mosquito larvae.

“What was surprising was the small amount needed to be so deadly,” Rodriguez said of the potential for the eco-friendly alternative to synthetic insecticides, which often have harmful environmental side effects due to overuse.

Natural insecticides

This discovery is part of a growing body of research into plant-derived insecticides. Previous studies from Ohio State identified natural mosquito-repellent properties in plants from Madagascar, which inspired



the team to explore hemp.

Study co-author Peter Piermarini, a professor of entomology at Ohio State, said CBD could be an attractive candidate for broader pest management strategies. “It’ll be interesting to learn more about how CBD interacts with various proteins in mammals and insects to understand why it’s safe for people but not insects,” he said.

However, Piermarini emphasized the need for more research into how CBD-based insecticides could affect non-target species, such as honeybees, which play a critical role in pollination and biodiversity.

More research needed

While the findings are promising, they raise questions about the ecological impact of widespread CBD use in pest control. Mosquito larvae thrive in aquatic environments, and introducing CBD-based insecticides into these habitats requires a careful examination of how non-target aquatic species might be affected, the researchers noted. Protecting biodiversity while controlling pests is a delicate balance, and future research is needed to assess potential unintended consequences, they added.

Researchers also see potential in refining extraction methodologies for CBD-based insecticides, ensuring they are efficient and environmentally sustainable. This could involve optimizing the concentration

of CBD to make it more effective at lower doses, further minimizing its ecological footprint.

Biopesticide revolution?

The study opens several new avenues for research, including the efficacy of CBD against other insect species resistant to traditional insecticides. If CBD can be adapted to control a broader range of pests, it could revolutionize the biopesticide industry, offering a natural and eco-friendly alternative to synthetic chemicals.

Additionally, there is potential for genetic engineering approaches that could enhance the insecticidal properties of hemp, making it an even more powerful tool in pest control.

“Understanding how these natural compounds interact with different insect species will be crucial for developing safe, targeted pest control methods,” Rodriguez said, noting that the ultimate goal is to create solutions that reduce environmental harm while remaining effective against resistant pests.

The research was supported by the Infectious Diseases Institute and Ohio State’s College of Food, Agricultural, and Environmental Sciences. The journal *Insects*, which is peer-reviewed, is an open-access journal by the Basel, Switzerland-based Multidisciplinary Digital Publishing Institute.



‘Circular renovation’

Hemp on par with wood in ability to capture greenhouse gas

Hemp can store CO₂ as efficiently as wood in raw materials for the construction industry, and should meet EU certification criteria for carbon credits, a new report from Germany suggests.

The report found that carbon removal through hemp is in a range similar to that for fast-growing spruce, Douglas fir and birch trees – both on a gross and net basis.

Based on existing scientific literature, the report was compiled by nova-Institute, a research organization based in Hürth.

Yields matter

“For hemp, the amount of carbon stored in the raw materials which can potentially be used in the construction and insulation industry is found between 9.5 and 11.4 t CO₂eq/ha (gross), with the main sensitivity being the straw yield per hectare,” the report notes. “Higher straw yields result in more stored carbon per hectare, whereas the opposite holds for lower yields.”

Gross refers to total carbon captured by hemp in the field. Net figures for hemp subtract any greenhouse gases gen-

erated from planting, harvesting, decortication and transporting hurd, fiber and dust, while for wood it takes into account emissions resulting from debarking and transport to the next processing facility.

According to the paper, net carbon removal rates range from 5.5 to 11 tons per hectare for both hemp and wood.

‘Interesting option’

The European Commission’s Directorate-General for Agriculture and Rural Development (DG AGRI) is aware of the potential environmental benefits of hemp, which is “an interesting option” under the EU’s proposed carbon removal certificate framework, according to the report. That framework recognizes carbon benefits derived from nature-based solutions, such as restoring forests, soils, and innovative farming practices; long-lasting products and materials; and technology such as bioenergy with carbon capture and storage, or direct air carbon capture and storage.

“The aim of the EU carbon removal certification framework is to scale up carbon removal activities and fight greenwashing by empowering business to show their action in this field,” according to

the nova-Institute report. “The proposal sets out a voluntary EU-wide framework to certify carbon removals generated in Europe. It sets out criteria to define high-quality carbon removals and the process to monitor, report and verify the authenticity of these removals. To receive certification, the carbon removals will need to be correctly quantified, deliver additional climate benefits, strive to store carbon for a long time, prevent carbon leaks, and contribute to sustainability.”

EU plan and goals

The circular economy action plan of the EU aims to cut the carbon footprint of buildings through “circular renovation” initiatives that promote green infrastructure and the use of organic building materials that can store carbon.

A total of 939 million tons of greenhouse gas were emitted by European states in the fourth quarter of 2022, a 4% decrease compared to Q4 2021, when 978 million tons were released, according to Eurostat. The construction industry contributes an estimated 5 to 12% of member state CO₂ emissions.

The EU has a goal of reaching climate neutrality by 2050.

U.S. group gets \$19.6 million for conservation project

The National Hemp Association (NHA) has been awarded \$19.6 million from the U.S. Department of Agriculture (USDA) to lead a project aimed at protecting the Chesapeake Bay Watershed through climate-smart hemp farming.

The initiative, which will see hemp cultivated on up to 5,000 acres annually, employs practices such as contour farming, crop rotation, cover cropping, nutrient management, and no-till farming – methods that can reduce nutrient runoff, pesticide contamination, and soil erosion while improving the overall health of aquatic and terrestrial ecosystems.

Public/private

The funding is from USDA’s Regional Conservation Partnership Program (RCPP), which connects public and private partners to implement innovative conservation practices. The RCPP is designed to address critical conservation challenges such as water quality, soil health, and wildlife habitat protection, making it a perfect fit for the NHA’s goals in the Chesapeake Bay region.

The grant to NHA was one of 92 projects across 40 states that will benefit from a total \$2.5 billion in funding for conservation and climate-related projects. The funding – \$1.5 billion from the USDA and \$968 million from private partners – is part of a broader effort supported by the Farm Bill and the Inflation Reduction Act of 2022.

‘Tremendous demand’

U.S. Agriculture Secretary Tom Vilsack told Lancaster Farming, “There’s such a tremendous demand for conservation and these resources that we’re able to move this money at historic levels. There is a need and a demand.”

The Chesapeake Bay Watershed faces significant challenges from pollution and agricultural runoff. The area, one of the nation’s most vital ecosystems that supports wildlife, local communities, and agriculture, spans 64,000 square miles across six states and the District of Columbia.

“This is an incredible opportunity to demonstrate hemp’s ability to contribute to climate-smart agriculture, help farmers adopt sustainable practices, and expand the industrial hemp industry,” said Erica Stark, NHA Executive Director.



Nando Knodel of CarbonConnect, Hamburg, Germany.

Shortage of certified carbon credits is opportunity for hemp

Industrial hemp can help large companies to decarbonize their supply chains, but rigorous certification programs are needed if the plant is to reach its full potential as a nature-based solution to climate change.

With the Carbon Dioxide Removal (CDR) sector still emerging, certified carbon credits continue to be in short supply, indicating a clear opportunity for hemp, according to a new paper from CarbonConnect, a Hamburg-based provider of carbon-accounting services that also supports hemp stakeholders develop biochar operations.

Need to scale. Fast.

“The CDR sector needs to scale with unprecedented pace and hemp can be a powerful ally in this challenge, allowing for crucial complementary benefits on sustainable development,” the report observes. “The industrial hemp sector absorbs large amounts of CO₂ and has enormous potential to supply CDR certificates, yet there has not been any report on a single credibly traded high-integrity certificate from hemp.”

The CDR industry is expected to grow rapidly in the coming years. The International Energy Agency (IEA) estimates that the global market for CDR could reach \$100 billion by 2050, driven by the increasing need to mitigate climate change and the development of more cost-effective CDR technologies.

CDR certificates sell at a minimum of around \$100 per ton of CO₂, accord-

ing to Nando Knodel, CarbonConnect Co-CEO.

CDR vs. offset

CO₂ savings under CDR industry are calculated by subtracting any greenhouse gas created through processing from that absorbed by hemp plants, for example, to arrive at net-negative emissions. Offsetting, on the other hand, is based on avoided or reduced emissions that are not necessarily net-negative.

The difference is crucial, according to the paper:

“The commonly known term ‘offsets’ has already suffered immense media image loss. Since the early days of carbon offsetting, the voluntary sector was characterised by certificates of problematic quality that rapidly caused a race-to-the-bottom market logic.”

‘Critical’

“Buyers of offsets, who most often claim climate neutrality, contribute to reducing emissions but not net-zero,” Knodel said. “Buyers of CDR actually neutralize emissions and support net-negative technologies. If we are to achieve a net-zero economy, CDR will be critical.”

In addition to hemp’s potential as a “self-offsetting” agricultural commodity, CDR based on hemp “can be implemented in the short term,” according to the paper.

“No industry can afford to exempt itself from this collective effort that humanity has to undergo,” the paper observes.



The research site is in the port village of Lillo, Belgium.

Fighting ‘forever chemicals’

Belgian village exploring hemp to overcome pollution of land

University researchers and a village in Belgium are testing the potential of hemp growing for remediation of soil contaminated with per- and polyfluoroalkyl substances (PFAS) – “forever chemicals” that have long been used in a wide range of industrial and consumer products.

The initiative aims to clean up a location in the port village of Lillo, a part of Antwerp which has been contaminated by PFAS from firefighting foam. The village plans to eventually build a new fire station on the site.

“The (hemp) plant is not only good for our circular economy but also has the potential to extract PFAS from contaminated soils. Therefore, research in this area deserves our full support,” said Antwerp’s mayor and head of emergency services, Bart De Wever.

If successful, the cleanup method could be deployed nationwide across Belgium, according to Antwerp officials and researchers from the University of Ghent working on the joint initiative. Results are expected by autumn.

What are PFAS?

Because they do not break down in nature, PFAS have drawn scrutiny by environmental and health agencies. The toxic substances, found in water, air, fish and soil in many parts of the world, have been used since the 1950s to make a wide variety of consumer products including

How PFAS reach humans



“Teflon” nonstick pans, fast food wrappers, water-resistant clothing and carpeting, and in personal care products such as waterproof mascaras and eyeliners, sunscreen, shampoo and shaving cream.

In addition to firefighting foam, the primary industrial use of the chemicals has been for lubricants.

An alternative cleanup method to digging up and incinerating polluted soil, planting hemp appears to extract significant amounts of PFAS from the ground, storing the pollutants in the plant leaves. Under the process, those parts of the plant that absorb PFAS are destroyed, while the rest of the plant can be used.

Second project in Belgium

The cleanup initiative in Lillo is the second such project in Belgium, where industrial giant 3M said two years ago that it was successful in growing hemp to remove PFAS from topsoil and purify polluted groundwater at an industrial site in Antwerp. 3M became embroiled in a political scandal in Belgium in 2022 when studies for a tunnel project revealed the company had released high levels of toxins in the water, soil and in human subjects near its factory. Analysts have said 3M’s liabilities and remediation expenses tied to PFAS could amount to as much as \$30 billion.

In the U.S., the Environmental Protection Agency (EPA) is expected to classify certain PFAS chemicals as “hazardous substances” this year. EPA has said it plans to require companies to report releases of PFAS, and is seeking more power to pursue polluters as it analyzes sites and recovers remediation costs.

Beware the carbon scammers

Third party certification is key to creating value in credits

As hemp growers and processors begin exploring the potential business in carbon credits, they should tread carefully.

With a growing number of companies crowding into the potential \$100 billion market for such credits, the carbon accounting industry is already under fire over such things as double counting in which the same credits are sold to more than one company, and out-and-out fraud in which credits have been falsely certified or emissions reductions have been overstated.

Just like in the early explosion of the CBD sector, scammers are everywhere. Most recently — and most notably — an investigation into Washington D.C.-based Verra, the world’s leading carbon standard, revealed in January that more than 90% of offset credits counted by the company are likely to be “phantom credits” that do not represent genuine carbon reductions.



Big boys duped

The joint investigation, by the UK’s Guardian, the German weekly Die Zeit and SourceMaterial, a non-profit investigative journalism organization, noted that such companies as Disney, Shell and Gucci were duped into purchasing such bogus carbon credits. Verra CEO David Antonioli, who founded the company, has resigned as a result of the scandal.

Other notable scams in the U.S have involved companies selling carbon offsets that were not actually reducing emissions, using fraudulent data to generate carbon credits, and generally overstating the environmental benefits of their programs. Cases have involved sanctions and fines from state agencies and from the U.S. Securities and Exchange Commission and the Department of Justice.

In the UK, the Advertising Standards Authority has sanctioned at least three carbon accounting companies over the past three years for overstating the amount of carbon dioxide their projects were offsetting and misleading claims about the environmental benefits of their services, leveling fines in two cases.

The misleading claims often work hand-in-hand downstream with “greenwashing,” an unsavory form of marketing spin in which deceptive advertising messages overstate the friendliness of a producer’s environmental policies. Such major corporate players as Nestle, Coca-Cola and Hilton have been hit with fines for “greenwashing.”

“It is essential to think in the long run and follow only high-integrity carbon standards and methodologies to avoid the race-to-the-bottom logic we have recently seen in the market for offsets,” said Nando Knodel, Co-CEO of CarbonConnect, a Hamburg-based provider of carbon-accounting services that is also developing strategies that will let farming stakeholders develop biochar operations.

How can hemp operators sidestep the pitfalls and be assured of the value of any carbon credits they generate?

The first critical factor is the manner in which carbon credits are certified. Hemp growers and producers should take all precautions to avoid carbon-accounting service providers that offer in-house certification schemes on which there are no external checks, and seek out specialists who verify the credits through third parties to make sure they are legitimate.

Ensuring quality & value

Third-party certification helps to ensure that the credits are high quality and reflect the actual reduction of CO2 emissions — making them worth the money being paid for them and giving buyers assurance that carbon accounted for is the result of a transparent evaluation.

Critical to the process are “negativity,” which holds that only carbon captured beyond the operation’s footprint is eligible for trading, and “additionality,” assessing whether the activity would have been done without the additional credit sales anyway.

Hemp operators should also:

- Make sure the accounting project has clear and measurable goals.
- Research any third-party certifying organization.
- Ask precisely how the project assures that credits are “negative” and “additional.”
- Carry out exhaustive research on any potential service providers under consideration, including the professional backgrounds of the company officers. Criminal background searches are not out of the question.
- Have the service provider explain how emission reduction works, clearly define their accounting systems, and justify the costs of their services.
- Avoid carbon accounting companies whose shares are traded over the counter, the first fertile ground for scammers.

‘Climate branding’

“The hemp industry has a unique chance to obtain an important position in the emerging carbon removal market and benefit financially. But hemp still deals with unjust stigmas and the industry cannot afford a setback in its sustainability and climate branding,” Knodel said. “Hunting quick profits through carbon crediting programs that are full of conflict of interest, for example not including a guaranteed carbon sink, threatens that position and hence the opportunity to monetize the climate potential of hemp for all industry participants.”

“Effective communication, encompassing both internal and external dialogue, is essential for successful risk management.”

When risk goes positive



Strategies for elevating the public image of cannabis

Emad Rahim has worked as a management consultant for over a decade, supporting organizations and universities in project management, strategic planning, change management, leadership development, and diversity/DEI education and training. A faculty member in Syracuse University's College of Professional Studies, Rahim is an award-winning author, educator, Fulbright Recipient, and TEDx Speaker.

HempToday: Traditionally, risk has a negative connotation, but that's changing, and "positive risk" now comes into play in business management. What is a "positive risk?"

Emad Rahim: Positive risks are those potential scenarios or conditions that, if realized, would have a favorable effect on a project's or business's goals.

HT: What's an example of a positive risk in the hemp industry?

ER: One such instance is hemp's impact on sustainability. The escalating popularity of hemp post-legalization is largely due to its potential as a sustainable resource. Regarded as a renewable material, hemp can contribute positively to the sustainability of various products.

HT: Talk about that in the context of risk management.

ER: Such opportunities underscore the capacity for advancement and creativity within the hemp sector, paving the way for economic, ecological, and societal gains. Nonetheless, it's crucial to acknowledge that these prospects, while promising, are accompanied by their

own complexities and uncertainties that necessitate astute risk management.

HT: The cannabis industries suffer from something of a built-in bad reputation. Is there anything that hemp companies specifically can be doing to manage their reputations and mitigate reputational damage? How can they work the upside and build image?

ER: Establishing benchmarks aligned with the best practices of conventional manufacturing and agriculture can significantly enhance the credibility of the cannabis sector and elevate the public image of hemp.

Engaging in recognized quality assurance initiatives such as ISO 9000, and implementing quality control methodologies like 6 Sigma or Lean Sigma, positions hemp enterprises on par with Fortune 500 companies. This alignment not only facilitates the industry's mention in global publications and academic research but also paves the way for inclusion in esteemed recognition programs.

HT: Talk about risk management in the context of Environmental, Social and Governance (ESG).

ER: In managing risks within the hemp

sector, particularly regarding environmental and social factors, the focus is on adopting measures that curtail adverse effects while enhancing beneficial ones. Reflecting on the earlier example of sustainability, consider the adoption of eco-friendly agricultural practices.

Employing methods like crop rotation, organic farming, and restrained pesticide use helps maintain soil vitality and ecosystem diversity. From a social standpoint, fostering positive relations with local communities ensures that hemp cultivation contributes to communal prosperity without causing displacement or unfair practices. Such measures are instrumental in fostering a hemp industry that is both ethically responsible and ecologically sustainable, thereby promoting overall societal well-being.

HT: How important is communication to effective risk management?

ER: As a project manager, I'd estimate that communication constitutes about 90% of risk management. Effective communication, encompassing both internal and external dialogue, is essential for successful risk management. It guarantees that every stakeholder is well-informed about potential risks and the strategies implemented to mitigate them.

Strong communication networks, whether within the organization or with external parties, form the cornerstone of a robust risk management framework. They enable the crucial exchange of information necessary for the identification, evaluation, and effective management of risks.



Artisanal synergy

Amazon growers get training in low-cost biochar production

A cannabis farming cooperative in Ecuador's northern Amazon will work with German specialists to optimize biochar production for carbon dioxide removal and soil regeneration.

Cooperativa Ananda and Hamburg-based CarbonConnect announced a strategic agreement that also includes the development of a model system for certifying carbon credits.

“Through this synergy, the impact of biochar production and improving livelihoods of farmers in the northern Amazon of Ecuador through sales of CO2 credits, can begin,” said Nando Knodel, co-founder and managing director of CarbonConnect.

Artisanal production

Under a letter of intent outlining the cooperation, CarbonConnect and Ananda will provide hemp farmers and medical marijuana growers training in low-cost artisanal production methods for biochar, and take an active role in auditing CO2.

Part of the carbon credits generated are to be paid out to Ananda and individual farmers whose waste from marijuana and hemp crops is turned into the biochar. Also, some biochar is returned to farmers to spread in their fields, benefiting both soil health and crop performance.

CarbonConnect calculates CO2 removals by subtracting any greenhouse gas

created through biochar processing from that sequestered in the biochar, to reach “net-negative” emissions. The company has exclusive rights to the credits that emerge.

CarbonConnect credits are certified by Carbon Standard International, which verifies methodologies and projects that generate tradable carbon credits. Such third-party certification ensures that the credits are high quality and reflect the actual reduction of CO2 emissions — making them worth the money being paid for them and assuring buyers that carbon accounted for is the result of a transparent evaluation.

‘Social & climatic impact’

Ananda, a multi-disciplinary agriculture co-op based in the city of Riobamba in Chimborazo province, is a partner with the El Dorado de Cascales farmers association, which holds licenses for medicinal cannabis and industrial hemp farming.

“We are at the right time to initiate projects of great social and climatic impact in Ecuador,” said Sebastián Moreno, founder and manager of Cooperativa Ananda. “The partnership with CarbonConnect will allow us to tokenize and monetize the long-term capture and removal of CO2.”

The Ecuadorian Amazon and the Amazon rainforest as a whole face a vicious cycle of threats from climate change, deforestation, and water pollution from

gold mining. Climate conditions growing hotter and drier in the Amazon make it more susceptible to fires and disrupting rain patterns.

Projects in LatAm, Africa

CarbonConnect also has one project up and running in Africa, and a second project in Latin America that is in the development phase.

In Zimbabwe, the company helped the Harare-based Organic Farming Academy (OFA) set up a first-of-its-kind production facility that makes biochar from baobab husk left over after the processing of baobab powder. With support from the German Ministry of Economic Cooperation and Development, CarbonConnect worked with OFA in developing a locally made Kon-Tiki type kiln in which the waste is mixed with compost and applied back into the soil by farmers in the region. In addition to biochar operations, the Organic Farming Academy trains smallholder and wild plant collector families for EU certification of organic products.

In Colombia, CarbonConnect is working with the Atinkana reserve in the Valley of the Sierra Nevada and a farmer network that covers 150 hectares. The vision for that project is to use waste from coffee and cocoa production, as well as broken tree parts and stems, to produce biochar in soil pits to help forestation and water conservation efforts.



Was 2023 the year U.S. hemp fields stabilized?

Flowers still dominate; fiber acres grew, but value fell

Income from hemp flowers bounced back slightly in 2023 while fiber growers saw the value of their outputs fall sharply even though total fiber fields expanded, according to the third annual hemp report from the U.S. Department of Agriculture (USDA).

Overall, the highly anticipated report gave hemp stakeholders little to cheer about, with fields still well down from a peak of 37,000 acres in 2020, according to estimates from non-USDA sources at the time. That's when a rush to CBD extracts led to a crash that left farmers and investors burned as the biomass needed for production went unsold across the country, and prices plunged by as much as 90%.

In terms of acreage, industrial hemp farming grew modestly in the U.S. in 2023 after years of decline, with growers harvesting 23,475 acres compared to 18,251 acres in 2022, the USDA report, published each spring, shows.

But while the total value of hemp increased to \$258 million in the USA last

year from \$238 million in 2022, the gain was attributable exclusively to a flower subsector in which growth cannot be expected to hold up long-term. Overall, income from hemp flowers dwarfed fiber and grain, accounting for \$241 million of the 2023 total.

Flowers: Acres flat, \$\$ grows

While flower acreage remained flat at about 7,000 acres in 2023, flower growers saw an overall income gain of 35%. The \$241 million in income from hemp flowers in 2023 compared to \$178 million the year previous.

But those gains are likely unsustainable beginning in the near future as a gray-market boom in intoxicating hemp products – mostly made from CBD derived from the plant tops – can be expected to subside. That's because more and more states are reining in the products, which proliferated as a result of a loophole in the 2018 Farm Bill, which

legalized hemp federally.

In drafting that measure, lawmakers failed to see the emergence of edible, psychoactive products containing delta-8 and other synthetic forms of THC that can be made from hemp. The popular products, most of which are produced in the lab from hemp-derived CBD, are sold as alternatives to marijuana, which contains high concentrations of delta-9 THC.

Fiber: Acres grow, \$\$ shrinks

In addition to bans instituted by individual states, separate federal legislation could be forthcoming that could restrict products containing the synthetic hemp-derived intoxicants to regulations for recreational or medical marijuana, severely limiting the markets as such products are now widely available in common retail outlets throughout the country. Also, U.S. lawmakers could conceivably ban the products altogether, as some states have done.

While hemp flowers grew in value, hemp fiber went in the opposite direction, according to the report. Fiber acres grew 77% to reach 12,106, but the subsector saw the cash value of its output fall 59% – from \$28.3 million in 2022 to just \$11.6 million in 2023 – indicating significant price drops.

Meanwhile, U.S. hemp farmers appear to be content to let Canada continue to dominate the U.S. markets for foods based on hemp grain. U.S. grain fields fell to just 3,986 acres in 2023, down from 5,379 acres in 2022. The value of grain fell from \$3.63 million in 2022 to \$2.31 million in 2023, shedding 36%, the NASS report shows.

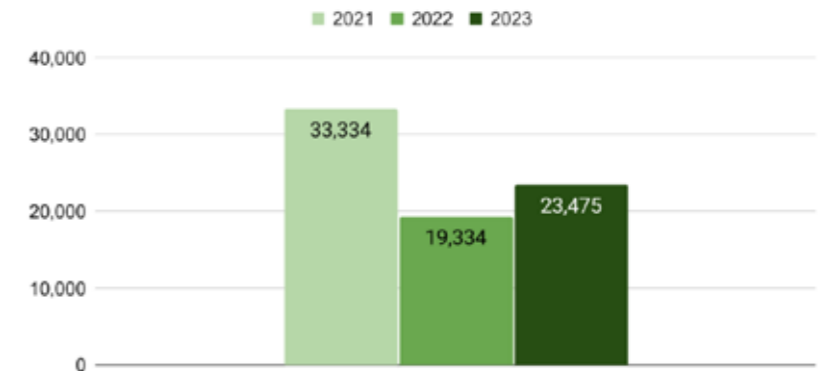
In a minor bright spot, 2023 production of hemp cultivation seed was estimated at 751,000 pounds, up 414 percent from 2022 as growers harvested 1,344 acres, up 66 percent from 2022. The value of hemp grown for seed totaled \$2.91 million, up 96 percent from 2022.

The hemp figures were collected by NASS under authority of the Domestic Hemp Production Program, which is managed by the USDA's Agricultural Marketing Service. The research is shaped by a number of federal agencies.

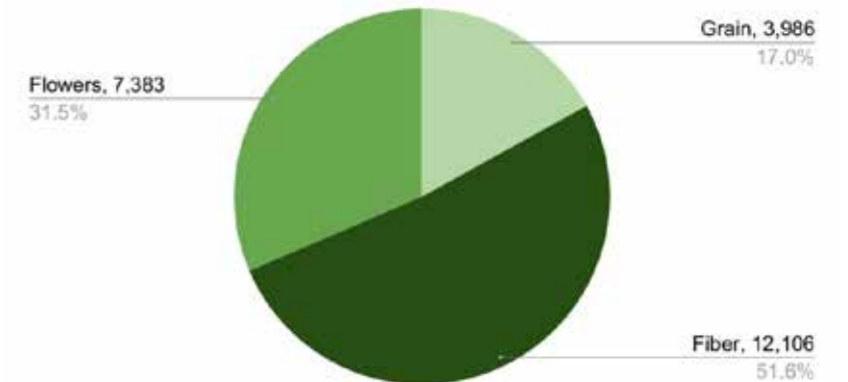
By the numbers

Key indicators of the U.S. 2023 hemp harvest, as reported by the National Agricultural Statistical Service (NASS)

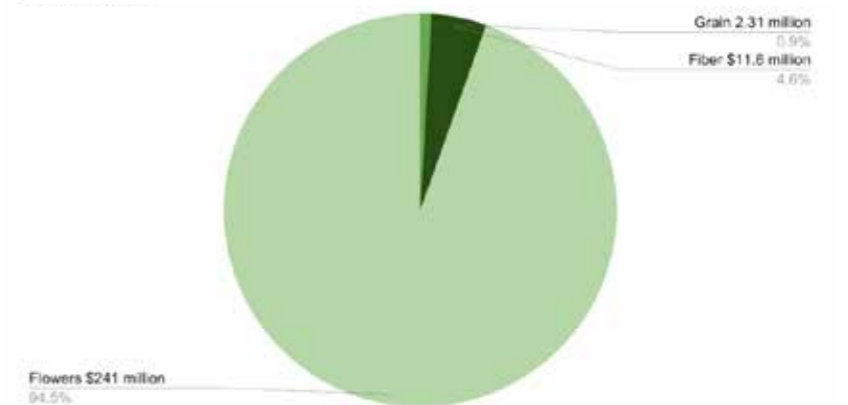
Total U.S. hemp acres harvested



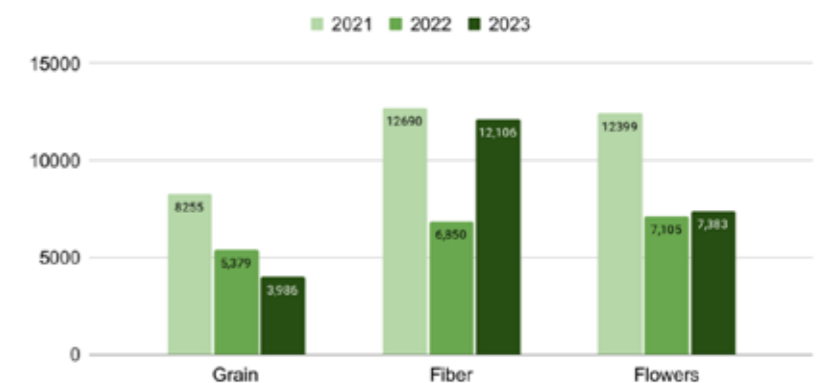
Harvested acreage by outputs 2023



Hemp income by outputs: 2023



Subsectors by acres harvested



Waiting for a Farm Bill

CBD, intoxicating hemp are dying for answers in key legislation

The future of CBD and the scourge of intoxicating hemp are front and center as the much-anticipated update of the U.S. Farm Bill is likely to be ready early next year. The five-year legislation, originally slated for passage in 2023, has suffered significant delays that have severely crippled the hemp cannabinoid sector.

Farm bills are critical legislative frameworks that shape U.S. agricultural policy. The 2018 Farm Bill marked a significant milestone for the hemp industry by federally legalizing hemp cultivation and the plant's derivatives, including CBD. This legislation classified hemp as cannabis with less than 0.3% THC (tetrahydrocannabinol), the psychoactive compound responsible for the "high" associated with marijuana. The hemp industry, particularly the CBD sector, boomed following this federal recognition, with consumer demand skyrocketing for products claiming a variety of wellness benefits.

However, hype and greed led to a quick crash, and regulatory ambiguity has left the sector in limbo. As the U.S. Congress debates the next Farm Bill, the future of the CBD industry and products containing intoxicating cannabinoids are key issues on the table.

CBD industry

The regulatory vacuum surrounding CBD is one of the most significant issues facing the hemp industry. The 2018 Farm Bill legalized hemp and its derivatives, but left the U.S. Food and Drug Administration (FDA) responsible for regulating CBD. However, the FDA has yet to establish clear guidelines, leaving producers in a legal grey area. The lack of oversight has allowed the CBD market to proliferate without consistent safety or quality standards, leading to concerns among consumers and regulators alike.

If the Farm Bill or other legislation pushes the FDA to regulate CBD, manufacturers will likely need to adhere to strict labeling requirements, including dosage, warnings, and verified health claims. This would create more consumer confidence but could also drive up operational costs for smaller hemp companies.

Also, currently, the FDA prohibits CBD from being added to foods and beverages, even though such products are widely available in many states. The new Farm Bill



may push for a harmonized federal policy, potentially opening up new markets while simultaneously adding compliance challenges for businesses.

While these regulations are designed to protect consumers, they could be a double-edged sword for the industry. On one hand, they could provide clarity, open doors to new markets, and improve public trust. On the other hand, smaller companies may struggle to meet the stringent new rules, potentially leading to consolidation within the industry as larger, well-funded companies dominate the landscape.

Growing concern: Hemp intoxicants

The biggest segment of the hemp industry in 2024 revolves around products containing synthetic cannabinoids such as delta-8 THC, which are derived from hemp but can produce mild psychoactive effects. These products exist in a legal loophole: they are technically compliant with the 2018 Farm Bill because they are derived from hemp, but they skirt federal marijuana laws by offering intoxicating effects similar to delta-9 THC, the compound responsible for the high in traditional marijuana. Lawmakers failed to take into account the possibility of "high"-producing substances made from hemp when they passed the 2018 Farm Bill.

The illicit products, which go by slang names such as "diet weed," "marijuana light," or "gas station pot," are sold in the form of gummies, candies, drinks, tinctures, "topicals" (often taken internally) and inhalable vapes and smokeable products. Officials in some states have come out strongly against the intoxicating hemp products because they are being marketed in packaging that mimics leading brands of treats that are popular among children.

Industry insiders, investors, lawmakers – and regulators – are closely watching

the "intoxicating hemp" market, and many believe the 2023 Farm Bill will crack down on these products. Some key changes could include:

THC Limits: The current Farm Bill limits THC content to 0.3% in hemp products, but this restriction only applies to delta-9 THC, not delta-8 THC. Many expect the new legislation to address this loophole, potentially by restricting all forms of THC, including delta-8, to similar limits.

Restrictions on intoxicants: Some members of Congress have proposed banning or severely restricting intoxicating hemp products altogether, citing concerns about consumer safety, especially for minors. Such a move would significantly alter the landscape for companies producing or selling these products, particularly in states that have not yet regulated them at the local level.

Licensing and oversight: The bill could introduce new licensing requirements for hemp processors, particularly those involved in the extraction and modification of cannabinoids. This would create a clearer distinction between non-intoxicating hemp products like CBD and intoxicating cannabinoids like delta-8 THC.

Mixed outlook

As the industry awaits the final version of the 2023 Farm Bill, stakeholders have mixed outlooks. Many in the CBD sector are cautiously optimistic that clearer federal regulations will stabilize the market and weed out substandard products. They argue that the current lack of oversight has led to a "Wild West" scenario, where substandard products have undermined consumer confidence.

At the same time, the bad actors producing intoxicating hemp products best prepare for a justifiable crackdown, as rational voices warn that these illicit cannabinoids are giving the entire hemp industry a black eye.

The promise of hemp was never about creating intoxicating products. It was precisely the opposite. If Congress doesn't provide the right regulatory framework in the next Farm Bill, it risks undermining the progress that's been made in establishing hemp as a sustainable and versatile crop.

While the legislation's final form is still unknown, it's clear that the new bill will have a profound impact on the trajectory of hemp in the U.S. Whether this will lead to a more stable and sustainable industry or create new challenges remains to be seen.



J. Stephen Conn

Playing catch-up quickly

Licensed fields double in Idaho, where farmers are focused on fiber

Late-comer Idaho has joined the ranks of leading hemp states in the U.S., with more than 2,440 acres licensed this year, according to the state's agriculture department.

Compared to last year, that would roughly double the hemp crop in Idaho, the last state in the union to set up a hemp program, in 2021. Idaho farmers first dipped their toes into hemp in 2022, when 450 acres were planted, and put in 1,273 acres in 2023, when it ranked as the nation's sixth-largest grower.

"The fiber varieties have taken off, and that's what seems to grow very well here," Greg Blahato of the Idaho Department of Agriculture (ISDA), who manages the state's hemp program, told Big Country News.

Climate suitable for hemp

While hemp grows well in Idaho's climate, farmers are still experimenting with how to best harvest the plant's stalks. Growers have had issues with crops being too green or wet during harvest time, according to the ISDA.

When Idaho farmers started with hemp in 2022, most grew flower varieties for CBD production. About 10% of those crops came in over the 0.3% limit for THC and had to be destroyed. As farmers turned mainly to fiber in 2023, no crops tested over the limit, ISDA said.

"From the regulatory side, we didn't see any issues with the crop last year," said Casey Monn, ISDA's hemp bureau chief.

Processors are online

While hemp fields are spread out in many parts of Idaho, most are in the south-central part of the state. That's where building products maker Hempitecture opened a 33,000-square-foot processing facility last year at Jerome. A second hemp factory, Idaho Hemp Processing, is in Rexburg, about 200 miles northeast of Jerome.

As hemp begins to work its way into the Idaho farming landscape, it competes with well-established state crops. Idaho farmers grow about 1 million acres of wheat, more than 1 million acres of hay, 500,000 acres of barley, 350,000 acres of corn and about 300,000 acres of potatoes each year.

"Idaho's agriculture industry is extremely knowledgeable and innovative," said Braden Jensen, director of governmental affairs at the Idaho Farm Bureau Federation. "Our growers will figure out whether it's an eco-

nomically viable crop in our state."

Idaho has one of the strictest hemp programs in the nation. The law allows the production and transport of hemp containing up to 0.3% THC, the federal limit. But in-state sale and possession of products containing THC are banned, and it is illegal to sell CBD.

Prospective licensees must get an Idaho State Police or FBI background check no more than 60 days before applying for a license. They must also identify and provide background-check details on persons managing operations, and maps of crop plots and facilities.

Fees from \$100 to \$1,000

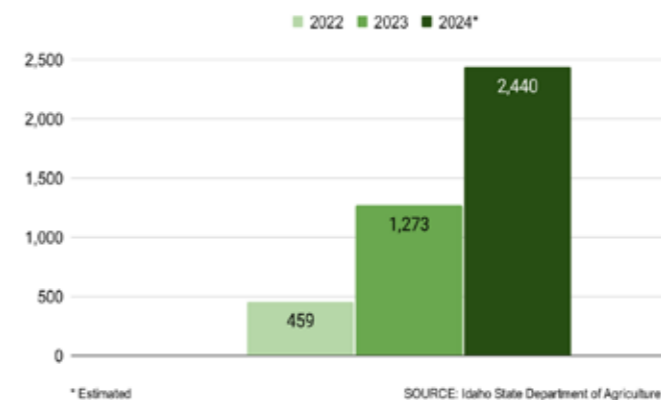
ISDA conducts inspections and collects samples no more than 30 days before harvest, which can begin only after those procedures are complete. The agency also manages lab testing, sampling and disposal. Once sampled, hemp crops must then be harvested within 30 days, or re-sampled. Licensees must receive notification their samples are THC compliant before their outputs can be sold.

ISDA also carries out annual inspections among handler licensees, and may take samples of any lots on hand. Producers and handlers can request a re-test of original samples retained by the lab.

License applicants pay a basic fee of \$100; growers pay an additional \$500 for an annual license and \$250 per lot for inspection.

Catching on in Idaho

Hemp fields are rapidly growing as fiber processing facilities are up and running.



Quest for the eco-friendly diaper

U.S. researchers developing hemp cellulose for absorbents

Purdue University researchers say they are using cellulose extracted from industrial hemp to develop biodegradable superabsorbent materials that will be less polluting than those now used in disposable diapers, feminine hygiene products, agricultural water retainers and other applications.

The widespread use of traditional non-renewable, non-biodegradable, petroleum-based absorbents has created environmental problems which are exacerbated by the significant energy required for their production, according to Senay Simsek, who heads the university's Department of Food Science and is leading a team of researchers in the hemp project.

"Hemp hurds, found in the inner woody core of the hemp stalk, are highly absorbent due to their high cellulose content and low lignin levels. This makes them an excellent alternative for superabsorbent applications," Simsek said.

Unique molecular structure

The cellulose extracted from hemp fibers is ideal for products requiring high absorbency because its molecular structure can be modified to boost its water retention capabilities, according to Simsek. Hemp bast fibers, the stringy fibers on the outer core of hemp plant stems, while less absorbent, provide strength and durability, she added.

Simsek said the Purdue process to refine the cellulose extracted from hemp involves a carefully designed sequence of treatments that first break down the natural structure of the material, increasing its surface area and porosity, like "turning a compact sponge into a more open, fluffy one."

"The uniqueness of our technology lies in its versatility, making it highly tunable for diverse applications of superabsorbent materials across various industries," Simsek said.

Other uses

Along with diapers and hygiene products, the Purdue-developed hemp material could also be used in additives that help soil retain water, offering a sustainable alternative to traditional superabsorbents that can harm the soil and retard



Senay Simsek leads the research at Purdue. (Purdue Agricultural Communications/Tom Campbell)

plant growth, according to Simsek. "Our approach conserves water and supports the ecosystem by providing a biodegradable solution that integrates seamlessly into natural cycles," she said.

Hemp-based absorbents can also be applied to biosensors used in a variety of industries, such as glucose strips and pregnancy tests, Simsek said. "The versatility stems from the material's ability to respond dynamically to environmental changes. This trait is essential for timely and accurate biosensing," she said.

Environmental challenge

The waste from used, non-biodegradable disposable diapers alone is impacting the planet's health, according to the World Economic Forum, which reported in August 2023 that more than 300,000 disposable diapers are incinerated or taken to landfills each minute, and that billions of menstrual pads and tampons are discarded annually in the U.S. alone.

In addition to environmental concerns, the production of absorbents based on petroleum leads to the depletion of limited resources and ties those products to fluctuating oil prices and geopolitical tensions, Simsek said.

Simsek said the next step to bring the superabsorbent materials to the market is to scale up the technology to industrial levels.

Huge \$\$ opportunities

"This scaling phase is vital not only for

refining our process but also for demonstrating the practical applications of our innovation in agriculture and food packaging, areas where sustainable solutions are urgently needed," she said.

The opportunities for such materials are vast. The global disposable diaper market was estimated to be worth around \$80-90 billion in 2023, while the feminine hygiene products market, including tampons, sanitary pads, and liners, is projected to reach \$50-55 billion by 2025. The combined market size for biosensor glucose strips used by diabetics and home pregnancy tests was estimated to be around \$20-25 billion globally last year.

The agricultural water retainer market is a relatively smaller segment estimated at around \$500 million to \$1 billion, but with increasing concerns about water scarcity and growing adoption of sustainable agricultural practices, the market is expected to see significant growth in the coming years.

Patents sought

The superabsorbent hemp-based materials being developed at Purdue have been submitted to the university's commercialization office, which has applied for a patent from the U.S. Patent and Trademark Office.

The Purdue hemp research team received seed funding through the College of Agriculture's Agricultural Science and Extension for Economic Development program, an internal grants competition that supports plant and animal agriculture and rural development.



First things first

The only real strategy for hemp textiles is to put the consumer up front

Today's production-driven U.S. hemp textile sector needs to be turned on its head, with the focus shifted to developing consumer demand for high-quality products, according to a [new report](#) from consultants Canna Markets Group (CMG).

As the latter-day hemp industry has developed since passage of the 2018 Farm Bill – an epoch referred to as "Hemp V2.0" in CMG's terminology – the focus has wrongly been on farming and production, to the near exclusion of product development and marketing, according to the report, authored by CMG Lead Strategist & Project Manager Joseph Carringer, a 25-year veteran in hemp and other textiles, and fashion.

Premature supersizing

"With this model, it appears that hemp is being cultivated and processed first, with attempts to find products for its use second. Product lines that cultivate consumer demand are necessary to achieve economies of scale," Carringer writes in the report's introduction. "Unfortunately, Hemp Industry V2.0 has done little to create these consumer-facing product lines."

By prematurely supersizing their pro-

duction, U.S.-based fiber hemp processors are scrambling to stabilize their operations by offshoring fiber into the international apparel manufacturing supply chains of China and India. That bolsters the economies of those nations while not addressing the lack of end-to-end domestic supply chains, Carringer argues.

National security threat

It also represents a national security threat by playing specifically into China's strategy for competing in the global marketplace.

"If Hemp Industry V2.0 continues to pursue an offshoring model for its fiber sales instead of supporting and developing manufacturing supply chains domestically, it will continue to play into China's long-term plan of economic dominance



over the West by creating dependencies on its goods," according to the report, "A Wearable Solution: Product Development for Industrial Hemp Textiles."

Chasing cotton

Early processors' fascination with cottonized hemp is also misplaced, according to Carringer, who suggests it is unrealistic to push hemp through existing supply chains for cotton, primarily for economic reasons.

Products that come from cottonized hemp – seen by many fiber processors as a "silver bullet" – ultimately cannot compete with those based on longer fiber, and wet and semi-wet spinning, which produce the most durable and high-quality hemp yarn and fabrics. By eschewing production of long fibers and high-end hemp fabrics, the U.S. hemp textile industry will also yield critical markets to other nations, Carringer warns.

"For industrial hemp to continue to develop as a commodity in the United States, there needs to be equal investment made into historically stable product line supply chains as there has been in agronomy, processing, and theoretical developmental markets, such as building materials and food," the paper concludes.

Down, down, down

Canadian fields shrink again, reaching modern-day low

Licensed hemp fields in Canada continued to shrink, with 11,861 hectares (29,309 acres) recorded in 2023, down from 13,589 hectares (33,579 acres) in 2022, according to government statistics.

The 2023 results show industrial hemp at its lowest level since Health Canada, the government's cannabis regulator, started tracking the crop in 2018. Canadian fields are one-fourth of what they were at a peak of 44,600 hectares (110,209 acres) achieved in 2017.

All three leading provinces saw their numbers fall. In Alberta, the number of cultivation licenses fell from 187 in 2022 to 130 in 2023 while hemp hectareage dipped from 6,532 to 5,595; the number of Manitoba farming licenses was 58 in 2023, down from 67 the year previous while fields dropped from 3,130 hectares to 2,270; Saskatchewan licenses were 75 in 2023 compared to 100 in 2022, and fields fell from 2,859 to 2,221 hectares.

Leading outputs

The annual report by Health Canada shows that the grain sector continues to dominate production, with 51% of hemp fields dedicated to that output in 2023. Crops grown for fiber were 30.1% of the total last year. Both subsectors saw hectareage fall by more than half in 2023 compared to the year previous.

Despite the downturn, Canadian hemp grain producers continued to dominate the U.S. market for hempseed-based products last year, shipping material valued at roughly \$55 million south of the border, according to the U.S. Department of Agriculture (USDA).

Canadian producers shipped in \$46.8 million worth of food seed, \$5.0 million in oilcake and \$3.6 million in hempseed oil, with most of the supplies coming from Manitoba (\$43 million), according to final USDA import figures from last year.

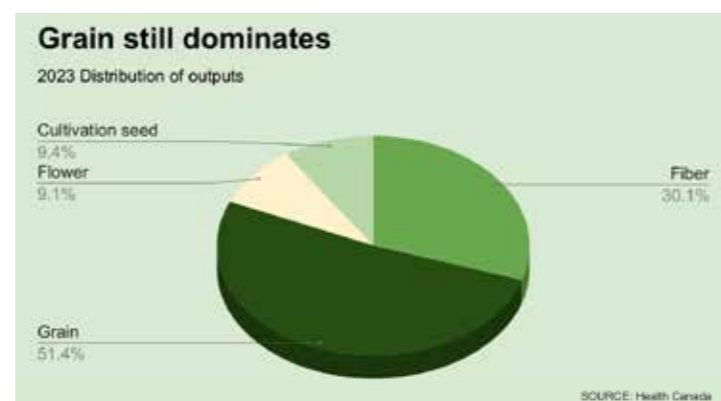
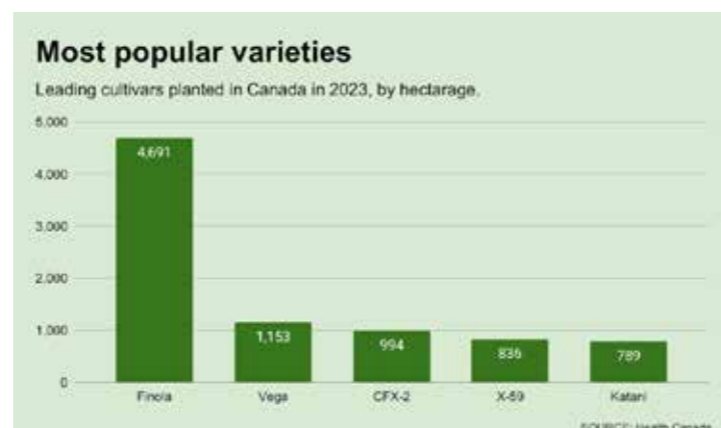
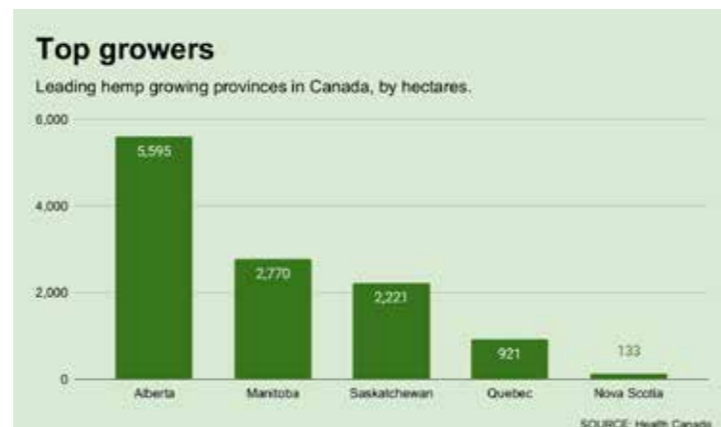
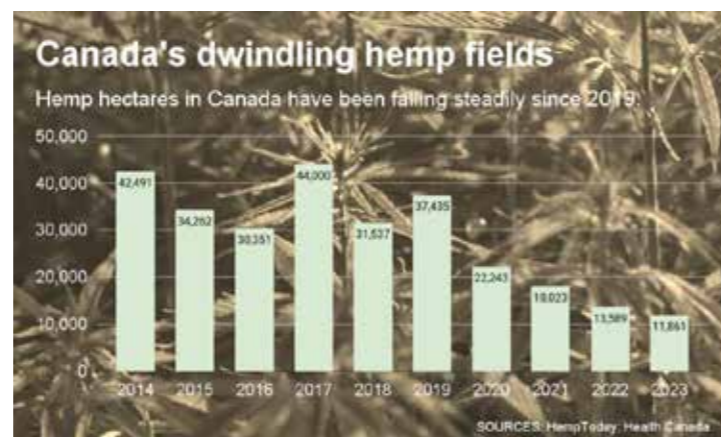
Canadian hemp fields hit a modern-day all-time high in 2017, spurred by a boom in exports of grain to South Korea valued at about \$35 million in 2016, as South Korean consumers, seeing hemp seed as an alternative to fish oils, took up the products, driven in part by aggressive tele-marketing programs. But Canadian exporters were hard-pressed to compete with Chinese producers, who quickly moved into the market with cheaper prices.

CHTA wants changes

The Canadian Hemp Trade Alliance (CHTA), the country's leading industry group, has criticized the country's regulators for what it says is a failure to recommend changes that would start treating hemp as a normal agricultural crop, and help reverse the decline.

Health Canada, which oversees both marijuana and hemp, said in a report issued in March that stakeholders informed the agency that the hemp industry in Canada has been negatively impacted by the legalization of marijuana in 2018.

CHTA has argued that all produce- and processor-facing hemp regulatory oversight and operations should be moved from Health Canada to Agriculture and Agri-Food Canada, the country's farming agency, and that testing and other matters related to THC should be addressed. The Alliance also said regulatory issues that have arisen from Health Canada's confusion between hemp and adult use/medical cannabis need to be clarified.



In search of sustainability

Hemp supply chains for food, cosmetics, textiles envisioned for Sicily

Sicilian officials say they will launch a broad-based program aimed at developing local supply chains for industrial hemp.

The initiative, "Canapa New Tech" ("New Tech Hemp"), is under the Sicily Rural Development Program (PSR), which invests in agriculture, forestry and environmental protection. PSR, which is jointly funded by the European Union and the Sicilian Region, has not indicated the level of investment.

The project will back the development of new hemp varieties, carry out trials in multiple sites, advance new harvesting methods, support the development of innovative technologies for the extraction of oils from hemp seeds, and promote hemp products.

Organic & conventional

The overall goal is to develop organic and conventional hemp supply chains for the hemp food, cosmetics and textile sectors, the Sicily PSR said in a statement. The one-year program runs to June 2025

in the provinces of Caltanissetta, Catania, Palermo, Ragusa and Messina.

Hemp advocates in Sicily say the region, with its coastal plains and river valleys, is particularly suitable for hemp farming during the spring-summer season.

Salvatore Zappalà, CEO of Milla-sensi, Bari, Puglia, which won the tender to manage New Tech Hemp, said the program "involves the transfer of technologies and processes to companies to become more sustainable. For example, by recovering waste we can enhance the real estate sector by prototyping new materials.

"From the fiber sector we can obtain bioplastics, looking in particular at the aerospace and nautical sectors, which are highly profitable," Zappalà said.

Activities of the program

According to PSR, the program will:

- Strengthen the skills and knowledge of entrepreneurs and operators in the region's industrial hemp sector.
- Boost research, technological develop-

ment and innovation by increasing collaboration among agricultural companies, universities and research organizations.

- Support the development of consultants and specialists in soil management and sustainable management methods in hemp cosmetics, food and textiles.
- Apply precision agriculture techniques via multispectral drone remote sensing.
- Install a weather station to monitor temperature, rain, humidity, wind, soil temperature, electrical conductivity and solar radiation.
- Carry out greenhouse and field tests on the mechanization of harvesting and processing operations.
- Apply innovative technologies for the extraction of oil and proteins from seeds.
- Develop innovative seed flours, and microwave-assisted hydro-distillation of the terpene fractions for extracts from hemp flowers.

A similar initiative, Multicanapa, was launched in Sicily in 2021, co-financed by the Italian state and the EU's European Agricultural Fund for Rural Development.

UK research probes use of hemp fibers in electronics

Researchers in the United Kingdom are working to advance the use of hemp and other natural fibers to replace polluting materials in conventional circuit boards.

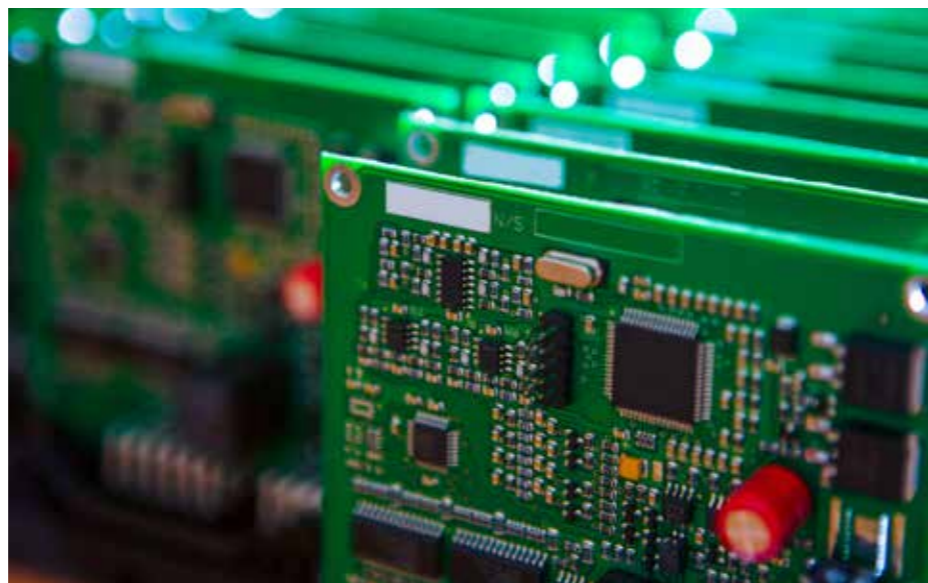
Experts from Waterlooville-based Jiva Materials and the University of Portsmouth were recently awarded a government grant to further develop and commercialize the concept, which has also been studied in Germany and Sweden.

Printed Circuit Boards (PCBs), used in everything from pacemakers to rockets, are the ubiquitous hidden brains behind modern technology. Rigid laminates required for PCBs have been made using highly polluting glass fiber epoxy for more than 70 years.

At the end of their life cycle, less than 50% of the electronic waste from those boards is recyclable, and the gold, silver and platinum content is usually too little to recover.

The e-waste problem

“Electronics represent a growing waste problem globally,” Jiva said in a press release announcing the partnership with the university’s Advanced Polymers and Composites (APC) Research Group. “On average, each person in the world generates 7.5kg (16.5 lbs) of electronic waste every year. . . with PCBs believed to



account for 8% of all e-waste.”

The alternative being developed by Jiva and the APC researchers is made by impregnating natural fibers with a water-soluble and halogen-free flame retardant, making the recovery of electronic components containing valuable materials more feasible when the PCBs are discarded.

Fully recyclable rigid PCB laminates based on natural fibers can have a 60% lower carbon footprint compared to glass-fiber and epoxy technologies, and can reduce the £8 billion (\$10 billion) worth of critical minerals that go into UK landfills every year, Jiva said.

Fully compatible

The bio-based laminates can be fully compatible with existing processes such as acid/alkaline etching, electroplating, drilling, routing and curing required in PCB production, according to the researchers.

Jiva has already produced a water-soluble PCB from a flax-based composite which breaks down when immersed in hot water

for a sustained period. The grant will allow the research team to continue its study of flax, and begin to explore the potential for hemp- and jute-based composites.

The APC Research Group at the University of Portsmouth is part of the School of Mechanical and Design, which focuses on applied research into sustainable composite materials and manufacturing through partnerships with industry.

‘Innovate UK’ funding

The funding is from a Knowledge Transfer Partnership (KTP) under “Innovate UK,” a government program that connects businesses with universities to pursue innovative initiatives.

In Germany, researchers at the Nagele Research Center of the Technical University of Munich have developed PCB laminates from bio-based thermoplastic reinforced with hemp and wood fibers. Also, Research Institutes of Sweden (RISE) is working on a project to develop bio-based circuit boards using hemp and other natural fibers.

German trade groups join to fight hemp intoxicants

Some German producers are attempting to skirt a new law against intoxicating hemp by turning out a wider and wider array of psychoactive compounds, drawing the ire of key trade groups.

The New Psychoactive Substances Act (NpSG), a generic ban on the lab-produced compounds derived from hemp took effect last summer, making HHC, THCP and other popular synthetic and semi-synthetic cannabinoids illegal.

New junk

Some manufacturers have responded by bringing to market new substances such as 8-OH-HHC; 10-OH-HHC; THCJD, HHCH, HHCO, THCPD, and Tresconol, compounds that can mimic marijuana by

producing a “high” in the user, but which are unexplored when it comes to safety.

The Association said that by using the substances, consumers who purchase products containing them are “unknowingly becoming guinea pigs.”

“There is no data basis on general toxicity or on ‘dosages’. Effects can occur with a significant time delay, last for several days and are unpredictable for mental health,” BvCW warned, urging containment of the products to protect youth.

The NpSG was enacted to prohibit the production, distribution and sale of new psychoactive substances, aiming to address the ever-changing landscape of legal highs, and protect public health. The law defines “new psychoactive substances” as those with a similar effect to narcotics, hallucinogens,

or other intoxicants. Under provisions in the law, the substances are classified based on their chemical structure, rather than their common name or source.

Threat for retailers

The sale of synthetic hemp-derived intoxicants also carries liability for retailers, the BvCW said. Aside from regulations in the NpSG, producers could find themselves in violation of Germany’s criminal code, its Product Safety Act and Tobacco Products Act, according to the press release.

“These products are not legal, even if manufacturers often point out that they are supposedly legal,” said Oliver Pohland, managing director of the Association of the e-Cigarette Trade (VdeH).



Region in Italy gets funding to support fiber supply chain

Italy’s northern region of Emilia-Romagna has provided €500,000 in financing for the development of a local industrial hemp supply chain focused on building materials and textiles.

“The investment in hemp and natural fibers will make it possible to outline a perspective for the future,” according to Pro Canapa, a committee that is leading the region’s hemp initiatives. The group said the funding will help in efforts to establish more ecological construction and fashion sectors.

Sustainability leader

Emilia-Romagna has been at the forefront of sustainable agriculture practices, with a focus on organic farming and reducing environmental impact. The region is home to a number of innovative farms that are using cutting-edge technologies to improve efficiency and reduce their carbon footprint.

Students and entrepreneurs, universities and other institutions are involved in the hemp supply chain project.

Plans call for:

Development and testing of an industrial bioreactor for the extraction of hemp fiber;

Construction of a pavilion made of hempcrete bricks which will be monitored for energy efficiency and performance in different temperatures, humidity, acoustics, insulation, breathability, and overall comfort;

Design and creation of sample hemp clothing items through a training program and knitwear course under the Vallauri Institute, a technical high school;

Additional fiber research initiatives on hemp and its many applications at educational institutions.

Stakeholders in Moldova want things simplified



Vladimir Bolea, Moldovan Minister of Agriculture and the Food Industry

As Moldova appears headed toward legalizing the cultivation of industrial hemp, stakeholders have outlined several key considerations that should be addressed in pending legislation.

Representatives of several organizations who spoke at a press conference this week said amendments under consideration should include a clear definition of industrial hemp, should simplify licensing under authority of the country’s food safety agency and the agriculture ministry, and limit growers to hemp varieties included in the European catalog of agricultural crops.

The groups also called on the government to provide support for the development of processing infrastructure, the commercialization of hemp products and the education of farmers.

In the works

Vladimir Bolea, Minister of Agriculture and the Food Industry, said in June that a project to develop a legal hemp program has received approval from the National Anti-Corruption Center and awaits final government approval before being submitted to the Cabinet of Ministers.

Natalia Papuc, representative of AO MOVCA, an organic agriculture association in Moldova does not distinguish between hemp and marijuana in drug laws. That means hemp farming is allowed only under strict authorization of the Permanent Drug

Control Committee, a complicated and daunting process for farmers.

Victor Melnic, president of the Moldovan Association of Aromatic and Medicinal Plant Producers, said growing hemp in Moldova will bring benefits to the the country’s economy and ecology, and has the potential to increase farmers’ income and create jobs.

Optimal growing conditions

Melnic said hemp is found in the spontaneous flora of Moldova, and that the country offers optimal growing conditions for hemp crops.

In making his announcement last month, Minister Bolea said he expected the government’s approval for changes in the law affecting hemp by the end of this month, but that has not happened yet.

“Farmers are requesting permission to grow this crop because it’s resistant to drought. We need to understand factors like yield per hectare, weather conditions, and potential seed buyers to ensure Moldovan farmers make informed decisions, not gambles,” Bolea said.

A part of historic hemp powerhouse Romania up until 1939, Moldova has a tradition of using hemp in textiles, nutrition and medicine.

Agriculture accounts for around 12% of Moldova’s GDP and employs approximately 27% of the labor force. Moldova’s agriculture is primarily focused on grains, sunflowers, sugar beets, and fruits.



‘Sustenance only’

Australians aim to meet compliance requirements for animal feed

The Australian Hemp Council (AHC) has launched a campaign to raise funds needed to meet newly established requirements that would clarify the market for hemp in animal feeds.

After the AHC engaged in extensive discussions with the Federal Agricultural Minister, the Australian Pesticides and Veterinary Medicines Authority (APVMA) and the Federal Department of Agriculture, Forestry and Fisheries, APVMA set down compliance requirements under which hemp fractions (meal and hulls) used for “sustenance” purposes only must undergo an agency technical assessment.

Also, “hemp fractions” used in a product making claims but not a “therapeutic” ingredient, such as hempseed oil, must undergo an “ingredient determination” by the APVMA.

Sorting out ‘fractions’

AHC said it needs AU\$50,000 (US\$33,000/€30,000) to do the work necessary to meet those requirements, and has appealed to stakeholders for contributions.

AHC’s primary goal is to establish the

differences between cannabinoids derived from the hemp flower, and waste “fractions” from hemp seed, according to a recently released paper.

That distinction would remove those production leftovers from jurisdiction by the APVMA, which claims it has not received sufficient information to determine whether hempseed meal and hulls are non-“therapeutic” and truly “sustenance only.”

‘Therapeutic’ vs. ‘sustenance’

APVMA considers as “therapeutic” and therefore asserts authority over cannabinoids and the fatty acids omega 3 and 6, which are found primarily in the hemp seed and hempseed oil downstream.

However, hempseed meal left over from pressing hemp seeds into oil, and hemp hulls, should be considered “sustenance only,” according to the paper, by agricultural scientist and hemp grower Bronwyn Blake, who is leading the AHC animal feed initiative.

Hemp hulls provide fiber, and hemp seed meal offers both protein and fiber. Regulation of those derivatives should be under Australian state governments,

Blake suggests.

‘We are quickly learning’

Blake said after Food Standards Australia New Zealand allowed hemp seed products to legally be consumed by humans in November 2017, many stakeholders mistakenly assumed those products could also be fed to animals, including pets. Some hemp businesses and products for animals appeared on the market, making health claims, which is not allowed for unregistered products or ingredients.

“This naivety was the catalyst for today’s restrictions. We can safely assume that compliant pet food manufacturers were a little put out by all of the non-compliant hemp products hitting the market and some of the health claims that accompanied them,” Blake writes in the paper.

In a position paper published in August 2023, APVMA said it considers all products containing all forms of cannabis and cannabinoids as veterinary medicines that require registration.

“What we are quickly learning as an industry is that, no matter what the science says, you can’t make a claim unless it has already been approved by the government,” according to Blake.

Fit for purpose

Hemp bill in Victoria would reduce ‘onerous, confusing’ barriers

A farming group in the Australian state of Victoria said it is backing proposed legislation that would loosen regulations for hemp growers and unlock the potential for production of sustainable building materials and other products.

The Victorian Farmers Federation (VFF) said passage of the measure could create new opportunities for the state’s regional communities. It addresses a number of issues facing the sector that were identified in a report by the state parliament’s Economy and Infrastructure Committee last year.

“We know hemp holds vast potential for various applications, including sustainable agriculture and construction materials,” said VFF President Emma Germano. “Removing government barriers, particularly those that are onerous or confusing, will unlock hemp’s full benefits, including the potential for secondary processing and manufacturing.”

Loosening up

The Hemp Industry Bill 2024, introduced into the Victorian Parliament by the Legalise Cannabis Party, increases the maximum hemp license term from 3 to 5 years, clarifies requirements for individual growers, removes inspection and licensing fees, and sets up special licenses for hemp research. The measure also addresses such

matters as criminal and police checks, and “ensures inspectors prioritize harvest over destruction,” according to a summary of the key provisions.

“The laws regarding industrial hemp are not fit for purpose and create an ongoing stigma that links the crop with illicit drugs,” Germano said. Hemp has been legal to grow in Victoria since 1998, but current regulations and expensive testing have held back farmers and investors, according to Germano.

The proposed bill largely retains existing provisions dealing with applications, licensing, inspection and enforcement, but puts those matters under a standalone hemp law, removing them from the state’s Drugs, Poisons and Controlled Substances Act 1981.

No cannabinoids

Licenses may be obtained for hemp farming, processing, and supplying of seeds for fiber and grain production from Agriculture Victoria, the state’s farming agency. Victoria observes the nationally-allowed THC limit for hemp crops of 1.0%, but the state does not allow the processing of leaves and flowers for CBD and other cannabinoids.

The law would also establish a special license that authorizes possession, cultivation and processing of cannabis plants that exceed the THC limit for

industrial hemp “for the purpose of scientific research, instruction, analysis, or study.” That provision is designed to allow research into hemp varieties that may exceed the THC limit to eventually develop cultivars that meet that limit.

In timber’s wake

Last year’s report by the government acknowledged the significant economic potential of the hemp industry, including job creation, export opportunities, and regional development, and stakeholders say a robust hemp sector could supplant jobs and revenues lost to the timber industry in the state after the government shut down native logging last year.

While the state’s hemp industry is minuscule now – fewer than 500 hectares of hemp are estimated to be harvested in Victoria for the 2023-24 growing year – proponents say planting 5,000 hectares of industrial hemp per year could result in the production of 50,000 tons of hemp hurd and fiber for natural building materials as conventional construction materials have been in short supply, driving up prices.

Regional production hubs are needed to reduce transportation costs and emissions and advance local economic development, according to a 2022 study by a team of researchers from Canada’s University of Guelph.



Cannabis growing in Morocco is limited to three provinces in the High Rif.

Under pot's thumb

Hemp takes a back seat in Morocco's emerging cannabis regime

Enthusiasm is building for cannabis production in Morocco, with the National Agency for the Regulation of Cannabis-Related Activities (ANRAC) reporting a surge in licenses issued since the start of 2024.

ANRAC said it has approved nearly 3,000 licenses this year; the agency issued just 609 in all of 2023.

The regulator did not break down the numbers when it comes to marijuana vs. industrial hemp licenses, but the government appears to be putting a greater emphasis on pot production to the disadvantage of hemp.

Morocco's cannabis law, established in 2021, lets farmers in traditional weed-growing regions legally cultivate marijuana for medical use and hemp for a full range of industrial, food and other applications. Recreational cannabis remains illegal. The government has said it hopes to attract international operators, generate tax revenues and create jobs by transitioning the informal cannabis market into a formal economy.

Geographic limitations

Morocco's legal framework for cannabis aims to stimulate local development, especially in rural areas affected by the il-

legal cultivation of marijuana. Only three provinces – Al Hoceima, Chefchaouen, and Taounate – are authorized for cannabis growing, all of which are located in the High Rif region of Morocco, a hotspot for illicit cannabis for centuries.

According to government figures, marijuana is a primary source of income for an estimated 400,000 Moroccan growers. That means the farmers the government is trying to lift up are much more likely to grow marijuana because they have experience with pot cultivation, which also brings a greater financial incentive.

ANRAC reported earlier this year that the country's first medical cannabis harvest in 2023 produced 294 metric tons of biomass. By contrast the regulator said one cooperative had exported 55.5 kg of hemp-derived CBD resin with a THC content of less than 1%, and 10 kg of hemp flowers with a THC content of less than 0.3% to a customer in Switzerland. Morocco's THC limit for industrial hemp is 1.0%.

Overly strict on hemp

Also reflecting a marijuana-centric policy in Morocco, the government has not carved out specific rules for industrial hemp, which is under strict

controls designed to establish traceability and prevent diversion of marijuana and its derivatives to the illegal market. That means hemp farmers must meet licensing requirements of marijuana growers, and are required to join cooperatives with other farmers, most of whom tend fields of one hectare or smaller.

Morocco's cannabis law envisions hemp grown for extracts to produce cosmetic and personal hygiene products, food products and dietary supplements, and fibers for the construction, textile, paper, plastic, and other industries.

By the numbers

So far in 2024, 2,837 cannabis licenses have been granted, with 2,659 issued to farmers. Non-farming "operating" licenses totaled 192 including 60 for processing; 49 for marketing; 39 for export; 24 for seed import; 1 for seed export; 18 for transportation; and 1 for the operation of nurseries.

ANRAC said the 98 applicants that received licenses include 23 cooperatives, 51 companies, and 24 individuals.

Moroccan King Mohammed VI this week pardoned more than 4,800 people convicted, prosecuted, or wanted in cases related to cannabis cultivation.

Zimbabwe time

Commercialization of hemp lags in Zimbabwe despite established laws

Despite clearly defined laws and regulations, a "knowledge and information gap" is holding back the hemp industry in Zimbabwe, stakeholders say.

That gap is a challenge to widespread commercialization, with research and capacity building at low levels, according to Jonathan Mukuruba, agribusiness director at the Agriculture Marketing Authority (AMA), a part of the Ministry of Agriculture.

"The key challenges are production, seeds, access to finance from local financial institutions, market access, certification of our farmers, and value-addition," Mukuruba said during a recent panel discussion. "We still do not yet have good agricultural control and control practices applicable to agricultural practices for our processors locally."

Climate goals

Investing in research and development of Zimbabwe's M-projects – an initiative to use mobile technology to improve agricultural practices and outcomes – and the creation of a carbon credits market could help advance the industry, Mukuruba said.

In urging the government to provide her organization with funding last year, Zimbabwe Industrial Hemp Trust (ZIHT) founder and chief executive Zorodzai Maroveke said the hemp sector could play a key role in the country meeting its environmental goals under the Paris Agreement to reduce greenhouse gas emissions and adapt to the impacts of climate change.

At the time, she said the ZIHT, a private initiative established to assist farmers in starting up hemp operations and to explore export potential, needs at least \$3 million to lay a strong foundation for commercialization of the sector.

Zimbabwe's hemp history

Zimbabwe started in hemp when the country moved to regulate and legalize cultivation and production in September 2019, and the "Industrial Hemp Regulations, Statutory Instrument 218" was put in place in 2020. The government later opened up the domestic market for CBD



Zimbabwe's farmers need certification, and the incentive of added-value crops

as a traditional herbal medicine in 2022. Early the next year, amended legislation removed industrial hemp from the country's list of dangerous drugs and set the defining line between marijuana and hemp at 1.0%, with oversight by the Ministry of Agriculture and the Ministry of Health.

That law, Criminal Law Amendment Bill 2022, was intended to open up the market to a wider range of hemp genetics and business in local seed research and production to expand options for farmers, the government said at the time – but apparently has not done so.

The Zimbabwean government said in May 2023 that it intended to ramp up research into developing domestic hemp varieties as part of the country's efforts to shore up income from a shrinking tobacco industry, under the country's Tobacco Research Board (TRB)

"We have plans to produce industrial hemp seed in the long term after

our Plant Breeding Division completes current projects on developing varieties suited to the Zimbabwean environment," TRB CEO Frank Magama said at the time.

61 licensees

As of this year, the Agricultural Marketing Authority has issued a total of 61 licenses for hemp production, including cultivation, trade, research, and breeding. Reports suggest Zimbabwe has so far exported over 8,000 ton of hemp – most likely flower biomass for CBD – primarily to Poland, Switzerland and Germany, but figures are difficult to verify.

Zimbabwean authorities see industrial hemp as a replacement for the country's falling prospects in tobacco, which makes up roughly 20% of the country's exports, but to establish a robust hemp sector, the country will need to move beyond CBD into the production of food and fiber products.



Farms in the northern Indian state average less than one hectare in size. [Photo: CIAT/NeilPalmer]

True Hemp

Indian state of Himachal Pradesh frames policy around traditional outputs

Lawmakers in the Indian state of Himachal Pradesh have passed an amendment to the state's drug law that will allow the production of industrial hemp and medical marijuana.

The state legislature in September adopted a resolution to amend the state Narcotic Drugs and Psychotropic Substances (NDPS) Act (1985), accepting a plan from a legislative committee formed last year to study the potential for cannabis production.

Under the resolution, approved unanimously by state lawmakers, industrial hemp is limited to the production of fiber, grain and cultivation seed. Hemp farmers can either grow the crop independently or engage in contract farming.

Medical cannabis will be strictly managed by the state government, with facilities to be under 24-hour surveillance by CCTV cameras.

The rules specifically exclude "charas," a popular form of hash produced from marijuana plants.

The legislative committee assigned to

study the industry last year made wide-ranging recommendations for the state program.

"The committee visited all the districts of Himachal Pradesh and consulted local residents on how cannabis cultivation could be used for medicinal and industrial purposes," said Jagat Singh Negi, Revenue Minister and chairman of the committee.

"We also studied the successful models in Jammu and Kashmir, Uttarakhand, and Madhya Pradesh. The overwhelming consensus was in favor of legalizing it in Himachal Pradesh," Negi said.

New cannabis agency

In addition to amending drug laws to open up the market, the resolution calls for establishing a state agency to regulate production under industrial hemp and pharma sub-units.

Plots used for medical marijuana production are to be geo-tagged by the state departments of revenue, information

technology and environment, science and technology, and climate change.

The committee said seed banks can be developed by government agriculture and horticulture agencies in coordination with research and development experts and universities including the CSK Agriculture University, Palampur, and Dr. YS Parmar University at Nauni.

The state government is to set aside funds for research and development, and public information campaigns. Knowhow needs to be advanced in all aspects of production ranging from cultivation to end products, the committee observed.

Hemp for rural areas

The government's goal is to attract investment while raising the economic prospects for impoverished rural areas and capitalizing on hemp's environmental benefits.

Advocates in Himachal Pradesh envision the production of hemp as an input for bio-plastics and natural construction



materials, pharmaceuticals, ayurvedic products, textiles, food and cosmetics. A strong hemp sector can create jobs and otherwise help boost local economies, and exports to international markets are also possible, they have said.

The production and sale of hemp products have been legal for several decades in India under strict rules in the 1985 NDPS Act and a 0.3% THC limit. However, states act independently, and many have yet to sanction hemp production, so the hemp industry has been slow to develop.

Research is needed

The Food Safety and Security Authority of India signed off on regulations in 2021 that opened up markets for hemp grain in the food and beverage sectors. However India faces the challenge of a weak ecosystem for developing hemp food products, exacerbated by a gap in knowledge and understanding of the processes involved in bringing products to market. Observers say research is still in an early stage, and that consumers must still be informed and educated about hemp.

India and the Indian subcontinent are home to many indigenous varieties of cannabis. However, quality hemp planting seeds are in short supply, and genetics for cultivation seed to produce grain for food still need to be developed.

Located just below the northern tip of India in the western Himalayas, the diverse climatic zones of Himachal Pradesh support a variety of crops, including grains, vegetables and cash crops such as ginger, garlic, and saffron. The state is also a source of medicinal and aromatic plants such as hops, wild marigold, and various herbs.

Though agriculture supports more than 60% of the state's population, farms are small, averaging less than one hectare of arable land.



New agency in Pakistan will oversee both hemp, marijuana

The government of Pakistan announced a new law that will finally establish a regulatory body for cannabis after years of discussion and political turmoil that have delayed the industries' development.

The new law establishes a Cannabis Control and Regulatory Authority (CCRA), and sets out a basic framework for licensing of both hemp and marijuana stakeholders. The CCRA will manage licensing and create rules to control farming, processing, manufacturing and sales of hemp products for medical, industrial and other purposes.

A 0.3% maximum THC level is adopted as the defining line between hemp and marijuana, according to the new law, which will apply to "any derivative of the cannabis plant, whether natural or synthetic, . . . (including) derivatives which are directly or indirectly manufactured from any part of the cannabis plant for use in other industries, such as textile industry, pharmaceutical industry, food industry, construction industry, chemical industry, etc. or any other industry as defined by the Federal Government from time to time."

Funding for development

The new law also calls for the government to provide financial and non-financial incentives to encourage the development of the market for cannabis products, and establish consumer protection and public safety strategies for such things as packaging, and consumer education and awareness.

Under specific rules, licensees must provide labeling that states the source and level of THC content, intended use, and any other information that may be included in rules yet to be established.

The CCRA is to set safety and performance standards for compliance with good manufacturing and agricultural practices, monitoring of THC content, and safe consumption. The new agency will coordinate enforcement of cannabis regulations with Pakistan's Anti-Narcotics Force, which is empowered to carry out inspections of cannabis operations.

Recent history

Pakistan approved hemp farming and processing in September 2020 under the government of then Prime Minister Imran Khan, putting direction exclusively under the Ministry of Science & Technology.

When current Prime Minister Shehbaz Sharif succeeded Khan, who was ousted in 2022, the new government also involved the ministries of Narcotics Control, Commerce, National Food Security and Research in cannabis policymaking.

Advocates have suggested that Pakistan's hemp sector could quickly reach \$1 billion, and improve the country's foreign exchange position. Some stakeholders see hemp as a replacement crop for cotton in Pakistan's textile industry, while others see opportunities for CBD production and say hemp fiber residue can be turned into bio-energy outputs.

IN MEMORIAM



Jürgen Neumeyer

German cannabis reformer was a warm, witty visionary

Jürgen Neumeyer, a prominent advocate for cannabis decriminalization in Germany and a key figure in the country's emerging cannabis industry, died unexpectedly on Wednesday, October 9, 2024. He was 56.

Neumeyer's death was announced by the Cannabis Industry Association (BvCW), which he had served as managing director since 2019.

Neumeyer was a central force in Germany's cannabis reform movement, dedicating more than three decades to the cause of legalizing cannabis for medicinal, recreational and industrial use. He celebrated his greatest professional achievement April 1 of this year, when Germany officially passed a law decriminalizing cannabis – a milestone that bore the unmistakable imprint of his efforts.

"For years, Jürgen was the voice of cannabis reform in Germany, pushing for change when it was politically unfashionable," BvCW said in a statement. "Without his persistence, the law we have today would look very different."

Politically active

Born in 1968, Neumeyer began his career in drug policy in the 1990s with Jusos (Jungsozialistinnen und Jungsozialisten in der SPD), the youth wing of the Social Democratic Party of Germany. He later worked as an aide to several members of the German Bundestag, emerging as a publicist, political strategist, and networker.

After the turn of the century, Neumeyer became the founding managing director of the influential "Netzwerk Berlin," a group established by reform-oriented members of the SPD who sought to modernize the party and push for progressive policies. It was in that capacity that his advocacy for cannabis legalization took on a formal, organized platform.

Neumeyer was active in Berlin's political scene, managing the magazine "Berliner Republik" and co-founding the think tank "Das Progressive Zentrum e.V." as well as the non-partisan political association "Wahlkreis e.V." His work in the political pub scene in Berlin's government district inspired policy discussions

that often found their way into official corridors.

Ties to hemp association

For a period during the 2010s, Neumeyer led the political communications team at Deutscher Hanfverband (the German Hemp Association – DHV) where he sharpened his focus on cannabis reform.

"Jürgen was a great supporter of the hemp industry in Germany and Europe. We are eternally grateful to him for it," said European Industrial Hemp Association President Daniel Kruse.

Recognizing the need for a unified industry voice to speak for marijuana and industrial hemp, Neumeyer helped found the Cannabis Industry Association in 2019. Under his leadership, the BvCW grew to represent more than 100 members, published more than 40 expert reports, and organized key industry events, all of which helped shape the legislation that ultimately removed cannabis from the country's Narcotics Act.

Pioneering figure

Colleagues described Neumeyer as a visionary who never stopped planning for the future. He had recently begun work on a cannabis industry directory, a specialist publishing house, and a "House of the Cannabis Industry" in Berlin. His long-term goals also included nationwide cannabis roadshows and hemp building projects.

Neumeyer was known for his wit, warmth, and wide-ranging interests. He was passionate about winemaking and beer brewing, hobbies he approached with the same dedication he gave to his professional work. He was also a music lover and an enthusiastic DJ, often bringing his unique sense of humor and lightheartedness to both professional and private gatherings.

"He will be remembered as a pioneering figure in Germany's cannabis reform, whose work laid the foundation for the industry's future," BvCW said in its statement. "We will continue Jürgen's work in his spirit and remain forever grateful for his leadership and friendship."

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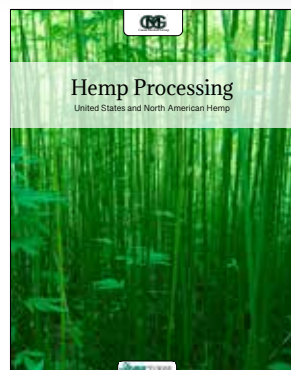
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