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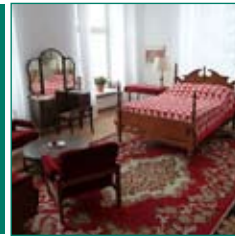


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Chemiepark Knapsack
Gebäude 0611
Industriestraße 300
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Tel. +49-(0)2233-48 14 40 (office)
Fax +49-(0)2233-48 14 50
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Kehrt Reyher
Editor & Publisher

Arne Verhoef
Managing Editor

Senior Advisers

Steve Allin
International Hemp
Building Association

Hana Gabrielová
Hempoint
Czech Republic

Richard Rose
The Hemp Nut Consultancy;
CannaCoach, Italy & USA

Morris Beegle
Colorado Hemp Co.
Colorado, USA

Daniel Kruse
HempConsult GmbH
Germany

Rachele Invernizzi
SouthHemp
Italy

Global Advisers

EUROPE

Rafael Dulon
Hanf Farm GmbH
Germany

Sergiy Kovalenkov
Hempire, Ukraine

Boris Bañas
CBDepot, Czech Republic

Monica Brümmer
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Texas, USA

ASIA

Dhiraj K. Shah
Nivedita Bansal Shah
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Nepal

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Media Advisers

Allan Lengel
Ticklethewire.com
Washington D.C., USA

Tom Sakell
Harbor Sights
Washington D.C., USA

Karen Stevenson
Witness.org
New York, USA

John Beauchamp
Home Grown Media
Poland

Europe

The Naklo Foundation

Naklo 74, Lelów • 42-235 Poland
+48 602 336 685 • info@hemptoday.net

Americas

The Fort • 2224 W 3rd St. • Duluth, MN
• 55806 USA • (01) 424 384 9140 •
john@hemptoday.net

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The European Industrial Hemp Association (EIHA)

EIHA was originally founded as an association of the members of the European hemp industry. Regular members include primary hemp processors in the EU. Associate members may be associations, research organisations and companies as well as individuals working in the area of hemp and other natural fibres. Founded in 2005, EIHA today has 27 regular members and 130 associate members from 37 countries.

EIHA was founded to give industry a voice at the European Commission in Brussels. It has rapidly become a respected industry association that provides effective lobbying and serves as an information bank. The annual EIHA conference has become an attractive opportunity for members and visitors to meet, learn about developments and exchange views with their colleagues.

Join EIHA and support the Hemp Industry.

Regular membership is restricted to those legal entities or companies, which perform the processing of hemp straw to produce fibres and hurds/shivs or hemp raw material such as fibres, hurds/shivs, seeds or flowers.

Each regular member has 10 votes plus 1 additional vote for every 1,000 ha of area under hemp cultivation contracted by its processing plant(s) in the current year. Regular members must provide, to the Executive Director of EIHA, data on their cultivation and processing of hemp and on the use of their material by product line by, at the latest, 1 April of the following year. Regular members are also member of several special interest groups (CBD, Fibres, Food, Shivs, THC). The membership fee is starting from 2,000 € (max. 999 ha) up to 2,200 € (max. 2,999 ha).

Associated membership: Any person or institution may become an associate member. Associate members may attend the annual EIHA meetings, having the right to speak, to make proposals and to vote. Each associate member has 1 vote. The membership fee for associate members is 350 per year (or a larger voluntary contribution).

For more information please contact:

Dominik Vogt
+49 (0)2233 4814-40
dominik.vogt@eih.org

or visit www.eiha.org





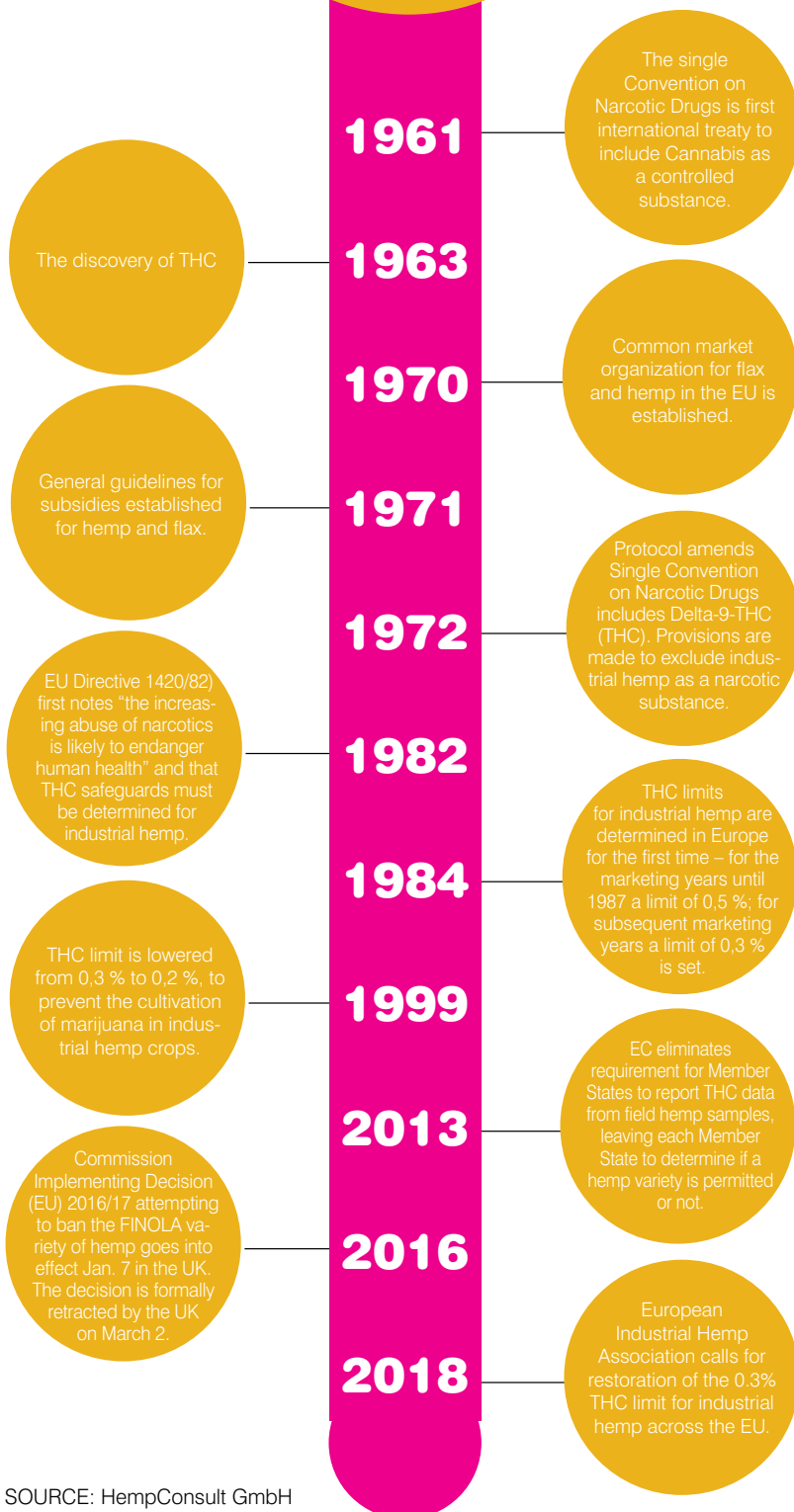
The
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THC DEBATE

If Europe doesn't move fast to make reasonable rules for THC levels in industrial hemp, we'll be missing an historic opportunity to maintain our rightful place as the leader of the crop's revival in the 20th and 21st centuries.

While most European countries follow an EU directive that sets THC limits for hemp at 0.2%, leading hemp nations around the world operate on a generally accepted global standard of 0.3%. And some, increasingly, much higher.

MILESTONES THC in Europe



SOURCE: HempConsult GmbH

The negative effects of the situation in Europe are evident up and down the value chain - particularly in the food and medicinal hemp sectors.

It begins, appropriately, with the seed. The 0.2% THC "in the field" limit mandated by the EU means European scientists and researchers haven't been incentivized to develop the high-yield seed varieties and high-CBD strains that are now in great demand. Such strains are absent any significant THC, but can still exceed the 0.2% limit. At the same time, several high-yielding hemp seed varieties, especially from Eastern Europe, are not viable for production under the 0.2% THC constraint. Time, value and money already have been lost.

Back to the Future

To understand how Europe fell behind other countries with respect to the 0.2% THC benchmark, one must take a step back, starting in 1984 when specific THC limit values for European industrial hemp were first set at 0.5%. In 1987 the limit was cut to 0.3% to meet a widely accepted standard set out in the 1970s by the International Association for Plant Taxonomy (IAPT), and based on the highly recognized analysis of American plant scientists Ernest Small and Arthur Cronquist. Their work for the IAPT set 0.3% THC (dry weight of flowers) as the line between *Cannabis sativa* (non-drug cannabis – "industrial hemp") and *Cannabis indica* (drug cannabis – "marijuana").

Generally looking to Europe as the pacesetter, the 0.3% standard was eventually taken up by Canada and other countries where it remains the legal benchmark today. Meanwhile, Europe took a step backward in 1999 when it further reduced the allowable THC level for hemp to 0.2%. Why?

In 2016 Dusseldorf-based leading industry advisers HempConsult lifted the curtain on the THC situation in Europe by summarizing the background on the EU 0.2% regulation (<http://tiny.cc/hc-thc>). That paper, in turn, started a fruitful discussion about this issue until, in 2018, the European Industrial Hemp Association (EIHA) took over the agenda and issued its own analysis of the situation in a press release (<http://tiny.cc/eiha-thc>)

Fiber & subsidies

As a nascent hemp industry re-emerged in Europe near the end of the last century, the new stakeholders put the primary emphasis on growing for fiber applications. Anxious to stay in line with EU guidance, and still under the shadow of the Global War on Drugs, growers were forced to comply with the 1999 0.2% THC benchmark if they wanted to grow hemp. It was the only ticket to EU subsidy programs designed to support the crop – which were particularly popular in European hemp fiber production leader France, where the government from time to time sweetened the pot by taking on additional national subsidies.

France was well-positioned to reap the benefits from hemp, having developed low-THC hemp

COVER STORY

strains throughout the 1980s and 1990s that were feeding into the paper making and construction sectors.

There is ample reason to think that lowering the THC limit for industrial hemp from 0.5% to 0.3% and then to 0.2% was perhaps not initiated, but surely not opposed, by the French hemp breeding industry.

Boom in foods, CBD

As the 21st Century dawned, more and more companies began to realize hemp's potential for food (it's a true superfood), as well as the health benefits inherent in hemp-derived cannabidiol (CBD).

Fast forward to 2018 and both sectors are now booming. Hemp foods are ever more present in the mainstream all over the world.

And it very important to understand that there is not unnecessarily a direct ratio of THC in the green part (flower, leaves) of the plant to the THC contamination on the shell of the seeds. (See story below)

The upshot: While EU subsidies for hemp are now on the wane, the 0.2% THC limit lingers. If THC limits are lifted, the fiber sector's dominance will be challenged by hemp strains that exceed (however barely) the EU-mandated 0.2% limit.

Down a narrow hemp path

CBD – which has seen its ups and downs in the gold rush of the past decade – is driving well over half of global hemp industry revenues at present.

The current EU limits are a narrow path – one that is critically retarding development of much, much bigger industries in hemp food and CBD. For the European industry as a whole, it's a disadvantage in the world markets, and this handicap is sure to intensify.

That's because as we in the EU now fight for a minuscule adjustment of 0.2% to 0.3% allowable THC, the world moves forward, led, ironically, by non-EU member Switzerland, which allows a full 1.0% THC in industrial hemp in the field. Its recent experience with “Nobacco,” the high-CBD hemp leaves that are being rolled into cigarettes and sold in pouches for roll-your-own, is a striking example of how logical rules can have direct – and positive – economic consequences.

Cashing in on Nobacco

Swiss producers started cashing in on this newest hemp craze last year precisely because their government recognizes the

scientifically proven fact that even a full 1.0% THC in hemp food, food supplements or medical products won't get you high – so that's the level they've set. With no worries about the 0.2% THC limits, producers can process high-CBD hemp strains with no worry. Other countries – Uruguay and Australia, for example – both have started discussions about lifting THC limits to match the Swiss example. Expect other countries to up the ante as well.

To compete, Europe needs change.

All over the globe, the hemp food and medical sectors are showing intensive growth as consumers learn of the nutritional and healing benefits of these products. We need the European Union to urgently raise the allowable amounts of THC in hemp from 0.2% to 0.3% THC to underpin European hemp's current position and to achieve a level playing field in these highly competitive, rapidly advancing world markets.

EU leaders need to recognize that without change, European growers and producers will fall yet further behind in this fast-moving industry. And the need for change won't stop any time soon.

Europe's futile efforts to slow marijuana use

As the European Union has sought to ensure that hemp growers don't sneak marijuana into their fields, officials have all along operated on flimsy premises.

Experienced hemp food processors around the world know that harvesting technology and the process of cleaning the seeds are the key factors to reach low THC levels in food end-products. Over the last decade, thriving markets in North America and imports from Canada prove that hemp food products can be completely safe for the consumer.

No correlation

In Canada, the industry operates on the 0.3% THC limit on plants measured in the field. But while China is now installing the 0.3% in-the-field standard, it has for years operated under no THC limitations at all. In other words, both countries have shown their ability to produce food that meets food safety standards despite higher in-the-field levels of THC in the source crops. There can be no better demonstration of the fact that there is no direct correlation between THC in hemp flowers and leaves, and THC contamination on the seed shells.

Then, there's the science. Cannabis sativa (hemp) is naturally dioecious, with separate male and female plants while Cannabis indica (marijuana) producers actively remove all male plants to prevent pollination, as the production of seed reduces the production of THC. This method of seedless cultivation (“sensimilla”) produces the best quality marijuana with THC levels greater than 15%, and also increases female flower yields considerably.

Social and market trends

By contrast, industrial hemp requires male or dioecious plants to provide pollen for seed production. Cross-pollination of high-THC cannabis with hemp pollen therefore significantly reduces THC levels in marijuana plants by producing unwanted seeds in the flowers, making the end product far less valuable to modern markets that search for high-THC products.

And while cross-pollination of hemp with marijuana could increase the THC content of hemp, that comes only after several generations of careful selection and breeding.

Meanwhile, the EU's attempts to minimize marijuana production over the

past two decades – i.e. its complicity in the Drug War – have consistently run counter to prevailing social and market trends. Making maximum 0.2% THC in hemp as a sort of “holy grail” has done nothing to slow down the consumption of high-THC cannabis across the continent anyway.

Pot usage continues to grow

According to drug market statistics, more and more people are using marijuana for both medical and recreational purposes since the end of the last century, when the limit for hemp in THC was lowered to 0.2%. Moreover, THC levels have increased significantly in cannabis samples over the last two decades – meaning that lowering the THC limit for industrial hemp has had no effect on advances in marijuana production or consumption.

It's clear that the misguided attempts by the EU to minimize illicit production of marijuana have not been achieved by lowering the THC limits in industrial hemp from 0.3% to 0.2% in 1999. Rather, they've had the unwanted effect of placing unnecessary and costly burdens on those working to create a viable and vital hemp foods sector for Europe.

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Europe: Tough row to hoe

Lack of clarity over CBD, THC hold back hemp on the continent

A riddle set in motion by European Union authorities earlier this year has hemp food producers on the continent scratching their heads this summer. Changes in how CBD is considered under the EU's Novel Foods Directive, never announced but eventually noticed by some producers, is sure to cause more confusion in an already confusing sector.

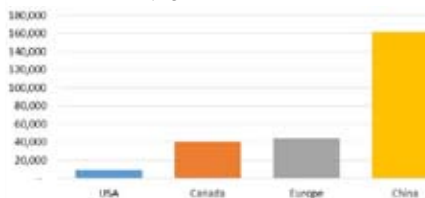
While a previous statement on CBD in the Novel Foods Catalog took a purely descriptive, and somewhat vague, approach, stakeholders recently noticed the definition had been re-written to state that any products which have more CBD than the plants from which they are derived are now considered novel foods. This affects particularly what's generically referred to as "hemp flower oils," industrial hemp green matter rendered in concentrated or extract forms. The change has the potential to throw yet another wrench into the European hemp food sector.

What's novel food?

Novel food is defined as food that was not consumed to a considerable degree by citizens of the EU prior to 1997, when the first regulation on novel food came into force. Novel food can be newly developed, innovative food, food produced using new technologies and production processes, and

Chasing China

Combined fields under hemp in Canada & the USA have now surpassed those in Europe. Hectares of hemp grown in 2017*



2017	Hectares	Acres	%
USA	9.312	23.000	4%
Canada	40.486	100.000	16%
Europe	44.534	110.000	17%
China	161.943	400.000	63%
Total	256.275	633.000	100%

*1 hectare = 2.47 acres

CannaCoach.org

food traditionally eaten outside the EU. The regulation requires such foods be safe and be properly labeled so as not to mislead consumers, among other requirements. The upshot for producers is a more burdensome marketplace as novel foods undergo stringent and costly authorization requirements.

Stakeholders noticed the definition had been changed, perhaps as far back as November 2017.

That's only the latest challenge to CBD among Europe's hemp stakeholders, who continue to contribute to the debate at the European and global levels.

The European Industrial Hemp Association and the Foundation for Alternative Approaches to Addiction (FAAAT) testified during the recent World Health Organization (WHO) public hearing in early June. While WHO is believed to be leaning towards a "hands-off" approach to CBD, the organization's consideration is vitally important because WHO's final evaluation eventually goes before the UN Commission on Narcotic Drugs (CND).

At the June hearings, Franjo Groterhermen, M.D., Germany perhaps best summed up the industry's fears over a continuing disregard of medicinal value of cannabis-derived medicine.

The compound will suffer continuing credibility problems until doctors are made to fully understand CBD and the clear connection between CBD and patient therapy, Groterhermen noted in comments during the WHO hearing.

Doctors, scientists and government should work for the benefits of citizens and eliminate narcotics laws that bar access to cannabis treatment and in fact often criminalize its use, Groterhermen said.

Aggressive lobbying needed

That's a reflection of how stakeholders are getting more aggressive in lobbying efforts to raise allowable THC levels for

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industrial hemp plants that are hurting hemp farmers and producers in the food and health value chain. Maintaining the current 0.2% THC in-crop limit for hemp is already damaging the industry. As the trend toward higher allowable THC levels spreads globally, the European hemp industry will find itself falling further and further behind absent this critical change due to limited number of strains eligible for direct payments.

Likewise, stakeholders say EU officials need to develop clear rules to overcome confusion created when the European Commission scratched the requirement for member states to report THC data from field samples in 2013, effectively leaving each of the 27 member states to sort out whether a particular hemp variety can be grown. Having an EU-wide set of rules could help to simplify complex sampling regulations which hamper the industry.

Growth despite uncertainty

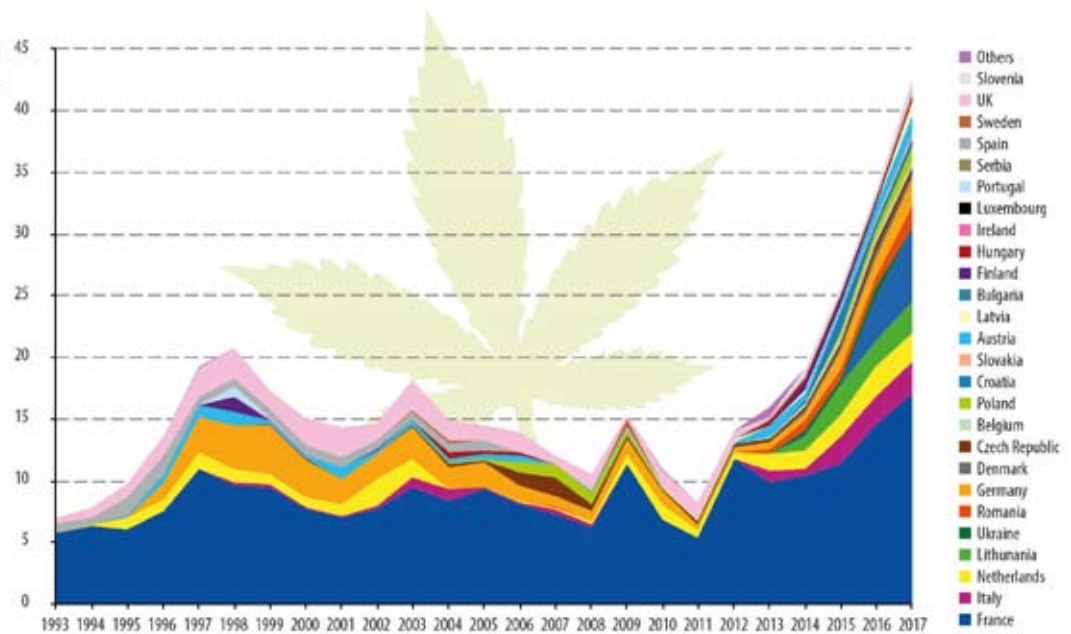
Despite the most recent confusion over food and the haggling over THC levels, Europe's CBD market is growing fast, with first-generation CBD products being replaced by more sophisticated ones. Many new products are entering the market, with the customer base expanding and prices dropping as more and more suppliers enter the market.

Of course, the CBD gold rush has brought with it a downside: Price wars are underway, and some bottom-feeder CBD suppliers are turning out products of questionable quality, compounding CBD's struggles with bad PR. That's brought damage to the trust in hemp products. EIHA has proposed a three-tier regulatory framework for products containing CBD, noting the current "tenuous patchwork" of rules covering CBD and hemp extracts in the European Union put in peril the CBD food supplements sub-sector.

Meanwhile nascent efforts to self-police the CBD market got underway last year when the International Cannabis and Cannabinoids Institute (ICCI) began testing products and

Growing grows

Hemp fields in the EU in thousands of hectares; total hectarage passed 40,000 in 2017



checking the claims on their labels. Rather alarmingly, ICCI found that only 9 of 29 European CBD oils proved "satisfactory" when tested for polycyclic aromatic hydrocarbons (PAH) — classified as carcinogens — prompting the Prague-based group to issue a warning about CBD and cannabis oils sold on the EU market.

Pushing THC issues

EIHA also continues to push THC issues, most recently repeating its demand that the European Commission develop harmonized guidelines for THC in hemp food products, based on an earlier released position paper in which the group makes a wide range of recommendations aimed at harmonizing legislation affecting THC levels across the EU. For now, stakeholders are pushing for THC-in-foods limits corresponding to those applicable in Canada, USA, Australia and New Zealand, i.e. 10 mg/kg.

Also, "EIHA demands rational THC in-crop limits for industrial hemp the Association said in an early 2018 release. It called for an easing of the 17-year-old restriction that sets maximum THC content for industrial hemp at 0.2% in Europe while other markets around the world set that limit at 0.3%.

Food sector at €40 million

"The hemp food sector has grown with considerable speed over the last several years and has reached a volume of €40 million in Europe and a global volume of €200 million," according to EIHA. "Reasonable regulations, especially harmonized THC guidance values, are crucial for the further development of the domestic hemp food industry."

The Association specifically called for the creation of a working group in the Directorate General for Health and Food Safety to address THC harmonization as it affects food from hemp seeds and leaves.

Despite the struggles, all indicators point to a continually expanding CBD market in Europe, with many suppliers across the continent also exporting to CBD-hungry North America. The demand for CBD is also spelled out in the search for planting seeds, said Hana Gabrielova, CEO at Hempoint, a vertically integrated Czech hemp company.

"Everybody is asking for high CBD strains, none of which are registered yet in the EU," Gabrielova said. "We're having to do a lot of explaining to many clients that there are no registered seeds that were bred for high CBD. There are no guarantees about the levels

of CBD in any of those certified strains out there."

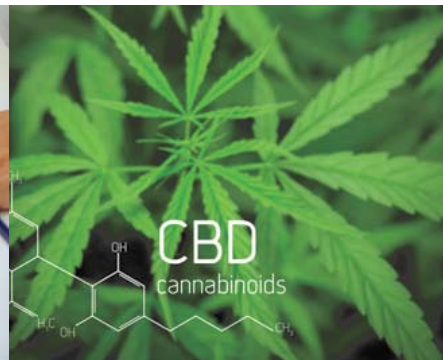
The lack of certified high CBD hemp varieties on the EU list of legal cultivars is attributable to the 0.2% THC limit observed in most European countries, Gabrielova noted. "The varieties are registered for seeds yield or fiber content but not for CBD content," she said.

Rapid innovation

None of that has stopped the innovation with CBD. Most notably in Europe over the past year, low-THC, high-CBD hemp green matter is being sold like tobacco, rolled into cigarettes and in loose pouches. The craze started in Italy and Switzerland, both of which have relatively high allowances for THC in hemp (Switzerland up to 1%; Italy 0.6%) that are well above the 0.2% level observed across most of Europe.

Dubbed "nobacco" by American hemp guru Richard Rose, the product "is all health and no high," says Rose, noting that CBD hemp can be grown like marijuana, either indoors or out.

"I see no barriers to entry in the U.S. or EU," said Rose, noting the vast potential market in the U.S. among aging pot smokers who don't want the strong high in marijuana, and tobacco smokers looking for a more healthy alternative.



“Companies want to know about the legal issues, how the value chain works and what the market looks like overall.”

Daniel Kruse, CEO
HempConsult GmbH



A hunger for hemp expertise

Demand is strong for advice on CBD, startups, technology

Investors and startups are clamoring for information and guidance on how to get into the CBD business amid an upsurge in what’s clearly proving to be the pace-setting sector in the overall hemp industry, according to Daniel Kruse, CEO at European advisory HempConsult GmbH.

“We’ve had a huge increase in the number of queries about CBD in the past 12 months. Companies want to know about the legal issues, how the value chain works and what the market looks like overall,” Kruse said.

Leading global consultancy

HempConsult is well positioned to deliver that valuable advice, having 23 years of experience in everything from farming and organic certification to legal and tax issues across all hemp sectors.

In the critical CBD sector, the company has long been involved in efforts to help make clear rules for the valuable compound in the European Union. In 2015 HempConsult joined with the Germany-based nova Institute to produce essential CBD and hemp food market studies.

And HempConsult was one of the first major global industry players to begin to quantify the overall hemp sector by compiling worldwide market data as far back

as 1996. That initial research is ongoing, producing regularly updated market reports on a range of indicators. (All of the research reports are available through the company’s website - <http://hempconsult.com/hempconsult-authoring-a-theme-paper-on-the-current-thc-regulations-for-industrial-hemp-in-the-eu/>).

Uptick in startups

HempConsult has a global client roster of established, bigger hemp players, but Kruse said he’s noticed a drastic uptick in inquiries from hemp startups of all kinds. “That’s really encouraging because it reflects a more enlightened pool of entrepreneurs who know they can benefit from a highly experienced partner as they

get their businesses going,” Kruse said.

And it’s helping those nascent enterprises that give HempConsult a special payoff. “We love working with creative entrepreneurs. We know we’ll thrive on ideas and creativity, as an industry and as advisers,” said Kruse, whose consultancy is sponsor of the first ever Innovation Awards at this year’s European Industrial Hemp Association (EIHA).

Solar-powered Hemp Factory

The most exciting new venture HempConsult has guided is Hemp Factory, a food processor setting up a fully solar-powered facility in Borken in northwestern Germany near the border with Holland. Kruse will serve as CEO in the enterprise, which will be one of the biggest hemp food producers in Europe when all production lines are running later this year.

Kruse said the development of that facility reflects a broader interest among HempConsult clients these days who are looking for all kinds of technology to process hemp for all of its potential end uses.

“The market demand for all kinds of machines for the industry is vast,” said Kruse, noting that this critical part of the industrial hemp value chain is itself a prime area for research, development and investment.

HempConsult

HempConsult GmbH

Founded: 2012

Headquarters: Dusseldorf, Germany

Profile: Complex services for all aspects of establishing hemp businesses.

Edge: More than 23 years experience; strategic partnership with Hempro Int. GmbH & Co. KG, established international player.

Website: hempconsult.com

Contact: +49 211-699 90 56-10



Designed for Sustainability

Hempro Int. looks to expand iconic brand's distribution

After purchasing the PURE brand of hemp accessories last year, leading European hemp company Hempro International GmbH & Co. says it is looking to further expand global distribution of the line of hemp backpacks, rucksacks and bags, according CEO Rebecca Kruse.



PURE

Kruse also said Hempro Int. recently received certification under three sets of quality assurance standards, as the fast-moving Dusseldorf, Germany-based company comes off a year of strong growth and development. Hempro Int., a diversified producer of hemp foods, cosmetics, clothing and accessories, has been around since 1992.

PURE's pedigree

With its acquisition of PURE, Hempro Int. has strengthened its position in hemp textile-based accessories. Because the company had been selling PURE bags since 2002, then became a licensee in 2005, its knowledge of the brand and bringing it fully in house opens broad marketing and product development possibilities, Kruse said.

"With our PURE line we're constantly brainstorming new products and improvements to the products in our existing portfolio," Kruse said.

The PURE brand dates to 1995, when its PURE HF Collection of bags was first introduced to the market (well ahead of its time). Because Hempro Int. has been selling PURE accessories since 2002, the company is intimate with the brand values that have driven the products' success, Kruse said.

Customer-driven values

"In the case of PURE, we know our customers value functional design, quality and durability – and those are what the brand delivers – backed up by a guarantee. We make it standard practice to not just live up to expectations, but exceed them," Kruse said.

Beyond quality factors, brand personality and character strongly contribute toward finding the right "market fit," not just for the customer but up and down the value chain, according to Kruse. And a key consideration for Hempro Int. and its PURE suppliers and customers is the sustainability the products offer: All materials that go into PURE accessories are traceable back 100% to ecological sources.

Foods & fashions

Hempro Int.'s overall portfolio also includes HANF FARM, a consumer brand

for hemp foods. That division has been a major factor in the company's emergence as a leading player in the European hemp market over the past two decades. Next to its own-brand products, Hempro Int.'s main business is industrial scale hemp foods production and bulk distribution, through which the company is meeting demand for raw materials in the fast-growing hemp foods sector in Europe and around the world.

Quality assurance standards

That's where the new standards are critical, Kruse noted. "These are important standards to meet in a rapidly growing market," she said. "More importantly, they reflect our continuing efforts to strengthen our bond with customers up and down the value chain."

Hempro Int., received ISO 9001:2015 certification applicable across the company's full range of products. The ISO 9001 certification is based on quality management standards that ensure a company's products meet the needs of customers and other stakeholders as well as statutory and regulatory requirements.

The company was also certified under Hazard Analysis and Critical Control Points (HACCP) guidelines for its food production; HACCP assures Hempro Int. uses a systematic preventive approach to food safety from biological, chemical, and physical hazards in its production processes.

Finally, Hempro Int. qualified under the GMP+ Feed Certification standards, a Good Manufacturing Practices scheme for feed seed production facilities and such things as storage, transport, and documentation.



Hempro International GmbH & Co. KG

CEO: Rebecca Kruse

Founded: 2002

Headquarters: Dusseldorf

Profile: Producer/wholesaler of hemp for foods, fashions & accessories, cosmetics. Online retailer.

Brands: PURE (accessories); The Hemp Line (clothing); HANF FARM (consumer foods).



The Hemp Line
NATURAL COSMETICS



The Hemp Line
NATURAL CLOTHING



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www.hempro.com

Bringing it Home

Leading food player hoists ‘Made in Germany’ banner

Berlin-based HANF FARM GmbH says it has achieved supply levels for hemp it grows in Germany to meet demand on the domestic market, and can now fly a “Made in Germany” banner for its hemp food products.

The development tracks trends in Germany in which consumers are looking for domestically and even regionally made products, said HANF FARM’s CEO Rafael Dulon, one of Europe’s leading industry figures.

‘Local’ is the new mantra. “Locally-’ or ‘regionally-grown’ has surpassed ‘organically grown’ in the minds of German consumers,” said Dulon, whose



HANF FARM GmbH
 Berliner Str. 14a
 D-14169 Berlin
 info@hanffarm.de
 www.hanffarm.de
 Tel: +49 30 78 00 65 25
 +49 151 118 7 108

organic hemp growing and food-processing operation has been around since 1997. “If you’ve got a picture of a local farmer on the package, German consumers these days find those products more trustworthy,” Dulon said. “We’re watching these general trends very closely and we’re fully set up to take advantage of the shifts in consumer preferences.”

HANF FARM makes a range of own-brand foods and provides white-label finished foodstuffs to other major German hemp foods brands. In both cases German “drogeria” chains like D&M and Rossmann that sell over-the-counter medicine and health & beauty products are expanding into food, giving HANF FARM added distribution power. Some are large-volume buyers who package and sell HANF



Rafael Dulon, CEO at Berlin-based HANF FARM.

FARM-produced white label foods under their own brand names.

Two decades in hemp. As soon as Germany freed up hemp again at the end of last century, Dulon began cultivating seeds in Saxony-Anhalt and Brandenburg, processing them into organic, high quality edible oils. Through two decades the company has constantly expanded its product offerings, moving beyond edible oils into a wide range of teas, flour, protein powders, and hemp-seed bars and chocolate bars with hemp seeds; and raw materials for CBD production such as ground leaves, pellets and CBD-powder.

New twist on hemp: ‘Hacha’. The company’s most recent innovation is ‘Hacha,’ a fine hemp powder that is micronized, water-soluble, rich in protein, anti-oxidants and CBD. It is typically dissolved in water to make tea or otherwise used in

foods. The name is a knockoff of ‘macha,’ a similar kind of powder made from other plants.

The raw plant material HANF FARM brings from the field is via an environmentally friendly process the company takes seriously: HANF FARM was the first European hemp processor to receive certification for hemp seeds, leaves and flowers under the International Sustainability and Carbon Certification (ISCC-PLUS) regime, which it was granted in 2016. The designation guarantees that the biomass is not produced on land with high biodiversity and high carbon storage.

Technology developers. The company is also the developer of hemp harvesting and processing technology, most notably the MCHC 3400, a revolutionary harvester ensemble designed for industrial-scale farming (see below) that HANF FARM is constantly being upgraded and refined.

Next-generation upgrades after 3 successful years in the field

After three successful harvest seasons in the field, Germany-based HANF FARM’s revolutionary hemp combine, the MC HC 3400, has been enhanced with an additional cutting unit on the truck. The latest improvement lets the harvester precisely chop the raw material on its way into the bin, thereby making better use of bin capacity. It also results in a significant efficiency gain in the drying of the raw material. A simple mechanism controls engagement of the cutter, which can be disengaged for other operations such as seed harvesting.



MultiCombine HC 3400

Key features:

- Carrier vehicle based on Hydro-Trac technology
- Ground clearance adjustable from 1.20 to 1.60 m
- Cutting width/header: 600 cm
- A powerful Deutz engine
- Hydraulic drive: 150 L/max. 200 bar
- Maximum cutting height: 3.40 meters
- Minimum cutting height: 20 cm
- Working speed: 10-12 km/h
- Wheels: 380/90 R50; Width 38 cm; Height 195 cm
- Bunker capacity 20m³
- Comfort cab
- GPS/Live camera system



www.hanffarm.com

hemp made
organic
in germany



Just like hand-picked

Small-scale harvester will go into performance tests this year

Hemp flowers are increasingly in demand - for tea, “nobacco,” craft CBD extracts and other products. Harvesting the flowers is generally labor intensive, with droves of people required over several weeks to harvest sizable crops. Large harvesters, on the other hand, are often not equipped to deal with the delicate work of producing high quality flower buds.

Several other problems arise when harvesting is done by hand, including the long harvesting periods required which creates inconsistencies in flower quality and cannabinoid composition. A German inventor and engineer, Heinrich Wieker, has developed a solution for this challenge: decreasing labor and time, and ensuring consistent quality.

Requests from all over the world

Henry’s Hemp Harvester (HHH), Wieker’s firm, was even honored by the celebrated Spanish cannabis industry event Expocanámo in May, receiving an Innovation Award for Best Industrial Project. Chosen by hemp experts, cannabis professionals and other stakeholders, the awards marked their first edition at Expocanámo this year.

“I’m getting requests from all over the world from people who want to use the harvester, see it or distribute it,” Wieker said after picking up his honor at Expocanámo. “Inquiries from mainland Spain, Mallorca, Tenerife, Portugal, France, Italy, Slovakia, Germany, Austria, Switzerland, Czech Republic and Poland have all come our way, and we have enough clients for serious performance evaluation, which will be the main focus this year,” said Wieker, who is already working on an even more advanced prototype while patents are pending and TÜV certification ongoing for his bud-stripping technology.

Boost for small hemp operations

Wieker’s electrically driven machine is based on patented stripping technology, mainly consisting of a pair of rollers and a set of chains that carefully strip flowers from the stalk, delivering them with the same finesse and quality as hand-picking. A team of three people can harvest hemp flowers from at least one hectare per day, Wieker said, and the flowers can be stripped while they are fresh, semi- or fully dried. The stems are left intact leaving them suitable for further processing.



German engineer Henry Wieker picked up an innovation award at this year’s Expo Canamo

A hemp harvester for the little guy

Developers: Heinrich Wieker, CEO, H8-Automation, design & engineering; Steffen Schuchardt: mechanic, welding, commissioning, workshop.

Capacity: About 100 kg of flowers/hr; more exact number can only be determined after performance tests in May and June 2018 in Andalusia/Spain.

Financing: Privately financed and independently led by the developer; about EU200.000 (\$247,000); bank loans.

Development time: Six months from concept to prototype.

Contact: henryshempharvester.de; +49 5136 8014150; info@henryshempharvester.de



The machine is portable, and can easily be relocated to other sites, making it attractive for dispersed processors as well as the increasing number of cannabis cooperatives.

Targeted at smaller farming operations, the machine aims to reduce labor costs and boost efficiency while expanding farmable

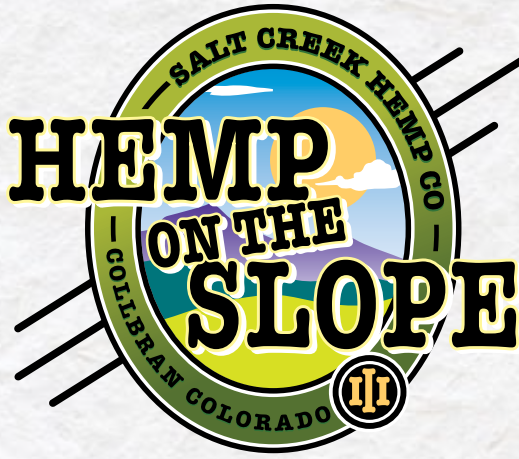
acreage for growing operations and reducing dependence on fair weather by speeding up the harvesting process. Wieker says the machine also will help give a competitive advantage to farmers through savings on input costs and by delivering a better quality product.


– Arne Verhoef

HEMP EVENTS



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Evolution at MH medical hemp

Medical cannabis, CBD skincare line are next for German company

Berlin-based MH medical hemp GmbH (MH) has applied for licenses to import and sell medical cannabis in German pharmacies, with approval expected this summer. MH is in the process of obtaining Wholesale Trading Authorization for human medicinal products as well as a Narcotic Drug License as outlined in the German Narcotic Drug Act.

Next evolutionary step for MH

“This is the next step in the evolution of the company. It’s a natural space for us to be in,” said Joscha Krauss, MH’s CEO. “The demand for medical cannabis in Germany is by far higher than its supply – especially when high quality standards lead to tight bottlenecks.”

Germany’s medical marijuana law, which went into effect in spring 2017, makes it easy for patients to access cannabis for medicinal purposes, removing a complicated system in which special authorization was required to obtain cannabis remedies in the past. Patients are only required to have a doctor’s prescription, and can collect reimbursement via their health insurance program.

“The fact that health insurance companies will cover the cost of medical cannabis gives Germany a leading role on a global level,” Krauss added, and empowers both patients and doctors in their efforts to manage patient needs.

The legalization also will spur German research on cannabis in all of its medical forms including CBD, Krauss noted.

New Phytalize Skincare line

MH also announced it will soon expand into the cosmetics market with the launch of a highly sophisticated product range under a new brand called Phytalize Skincare. The naturally-derived products – a lip balm, a balsam and a transdermal cream – all incorporate respective levels of CBD into the formulas.

For MH, the Phytalize launch marks the company’s expansion from wholesale CBD sales into branded goods for the consumer market; the company will also offer white label services based on the new products. The Phytalize debut comes after more than four years spent in research, exploring the advantages and disadvantages of various CBD extraction processes and installing rigid quality control standards. During that time, MH also has gained valuable market insight



Products in MH medical hemp’s new Phytalize cosmetics line are high in CBD content along with essential fatty acids, including gamma-linolenic acid – which is crucial for healthy skin.

“The demand for medical cannabis in Germany is far higher than its supply.”



Joscha Krauss, CEO
MH medical hemp GmbH

interacting with bulk buyers of its CBD, and boasts a rapidly expanding network of high-caliber and experienced customers and contractors.

“We’ve built up a lot of technical and scientific knowledge about the key ingredient – the CBD in the Phytalize line. That knowledge is essential to creating top-shelf products for the consumer.” Krauss said.

Transdermal delivery

Along with high CBD content, products in Phytalize cosmetics contain essential fatty acids, including gamma-linolenic acid – which is lacking in most people but which is crucial for healthy skin. Individual products also include derivatives from other beneficial plants to heighten the desired restorative effects of each. For example, the Phytalize balsam balm combines CBD with extract from the Calendula plant, an anti-inflammatory and healing agent that has long been used to treat wounds and rashes.

The Phytalize cream is based on an oil-in-water emulsion and liposomal technology that provides transdermal delivery, resulting in the slow release of potent active ingredients deep into the voids of skin tissue.

All products are free of GMOs, parabens, phthalates, formaldehyde and artificial coloring – substances often found in highly processed, chemical-based cosmetics.

Krauss sees MH as well positioned to serve the medical cannabis and CBD markets in Europe and beyond. Anticipating the sector will some day reach a set of industry-wide standards, the company has already established internal controls critical to further development of large-scale manufacturing processes that employ safe and environmentally-friendly methods.

How CBD market can expand

As the CBD business continues rapid growth, Krauss said a clear, rational regulatory landscape is the main thing still needed to keep the hemp cosmetics, medicine and food supplements sectors expanding, and to get beyond niche markets into the mainstream. Especially critical is the need to set the regulatory classification for CBD and rules governing its concentration and dosage, Krauss added.

On the wholesale side of the business MH offers hemp whole-plant Co2 extracted CBD oil that features the full range of cannabinoids, terpenes, flavonoids and phenols from EU certified hemp.



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Mission for Mongolia



Tungalag Tamir
Chief Technology Officer

Munkhbayar Nyam-Ochir
Chief Operating Officer

Anar Artur
Chief Executive Officer

Entrepreneurs envision 'hemp corridor' in heart of Central Asia

Roaming the native grasslands of Mongolia as a child, Anar Artur developed a fascination with the landscape and all things natural that he's carried into adulthood. That's how a fishing trip in 2013 upended his career.

"We came across some hemp plants – and that changed everything," said Anar, co-founder and CEO at startup HempMongolia LLC.

After researching hemp and realizing its many potential uses, Anar eventually quit his job in a marketing services company to focus on hemp. "I was sure that I'd found the perfect project to dedicate myself to, something revolutionary that can bring benefits not only to people but to the environment too," he said of his life change.

Anar eventually joined with his brother, Tungalag Tamir, and friend Munkhbayar Nyam-Ochir to form Hemp

Mongolia, which they are developing into a vertically integrated hemp agro enterprise. The project combines agriculture and high-tech financing strategies – with a goal of resurrecting an ancient crop in Mongolia.

Important milestone

After three years of work, the company early this year reached an important milestone when it got authorization from the Mongolian government to cultivate and process hemp into a diversified line of products, including for export – the first such licenses granted in the country. Hemp Mongolia also has signed initial agreements to lease 20,000 hectares for hemp farming, Anar said.

Critical to the trio's plans is HempToken, an "eco-investment" commodity on the Ethereum blockchain.

"Blockchain technology is bringing a

new level of efficiency and responsibility to international trade value chains," said Tungalag, who serves as HempMongolia's CTO and is the driving force behind the blockchain aspect of the company's strategy. He's been watching cryptocurrency and blockchain developments since 2009, and is a whiz at online marketing, brother Anar says.

Looking for an angel

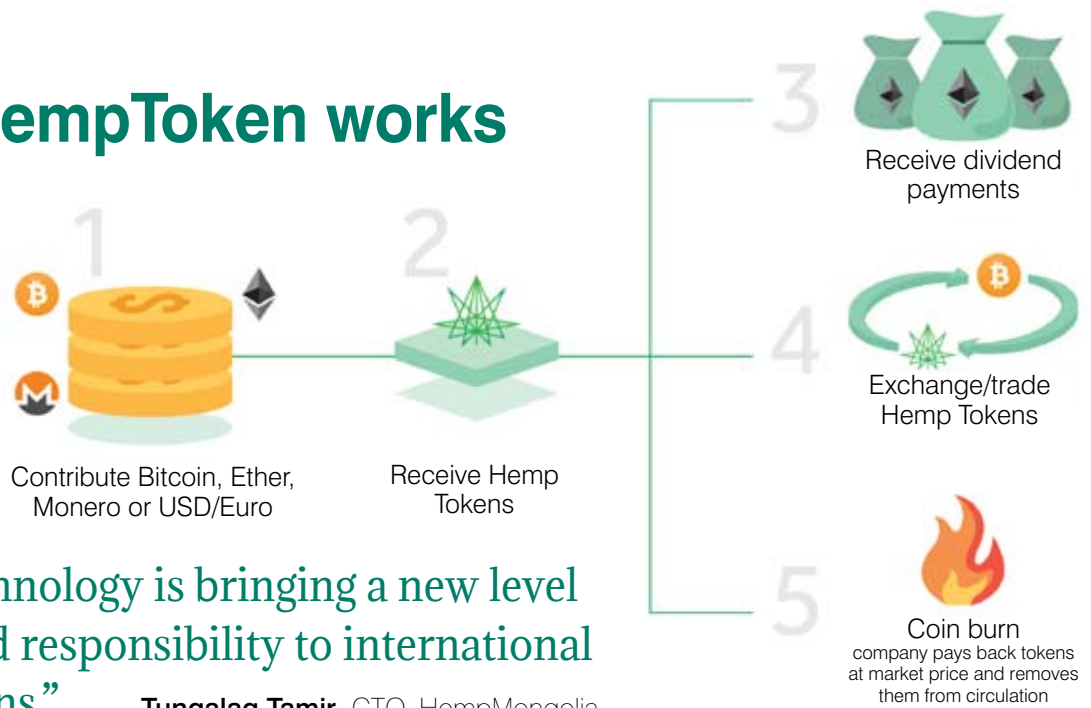
Close relations with farming officials and agriculture stakeholders and experts helped the company move quickly and inexpensively through a research and business plan development stage and into a search for investors.

The partners, who say they will offer 30% to private investors, are continuing to meet with interested parties as they look for an angel who can provide the spark for their ambitious vision, with estimates for a whopping 80% return within three years. A HempToken crowdfunding offering to raise an additional 20% will launch after the initial financing is secured, they say.

"It's necessary to build up strong

How the HempToken works

Once initial financing is secured, Hemp Mongolia will make a HempToken crowd-funding offering to raise an additional 20% financing. How the HempToken system works:



“Blockchain technology is bringing a new level of efficiency and responsibility to international trade value chains.” – Tungalag Tamir, CTO, HempMongolia

capital and technological advantages to become a leading exporter,” said Munkhbayar who, as Chief Operating Officer guides the company’s overall strategy and is leading the search for a partner. He sees Hemp Mongolia developing into a regional supplier of hemp food and animal feed as well as other value added by-products.

Anar notes that the Mongolian government is finally developing a strategic plan for agriculture after years of inertia in the sector as resources and attention were focused on a national mining boom. He said the government has realized that an economic growth model dominated by the commodity sector can’t meet long-term wealth creation goals.

Shifting policies

The new policies, aimed at creating scalable employment and diversifying the country’s economy by focusing on sustainability, innovation and new technologies, are driving public finance programs – and giving the agricultural sector momentum, Anar said.

Hemp fits into that strategy perfectly, according to Anar. “With its fast

Why Mongolia?

Leading indicators for hemp’s potential



1. Strong strategic location to enter Asian market
2. Direct access: Russian and Chinese markets
3. Rich history of trading with neighbors
4. Annual land rental prices less than \$1 per acre
5. Vast amount of virgin farmland rich in minerals
6. Low labor costs at \$500–\$700 per month
7. Free trade agreement with Japan
8. Double tax avoidance pacts 20+ countries.
9. Low corporate taxation at 10%
10. Total arable land is 580,000 hectares

At a Glance

Population: 3,000,000

Agriculture as part of GDP: 13%

Agriculture employment: 50% working pop.

Traditional crops: Wheat, potatoes, Canola

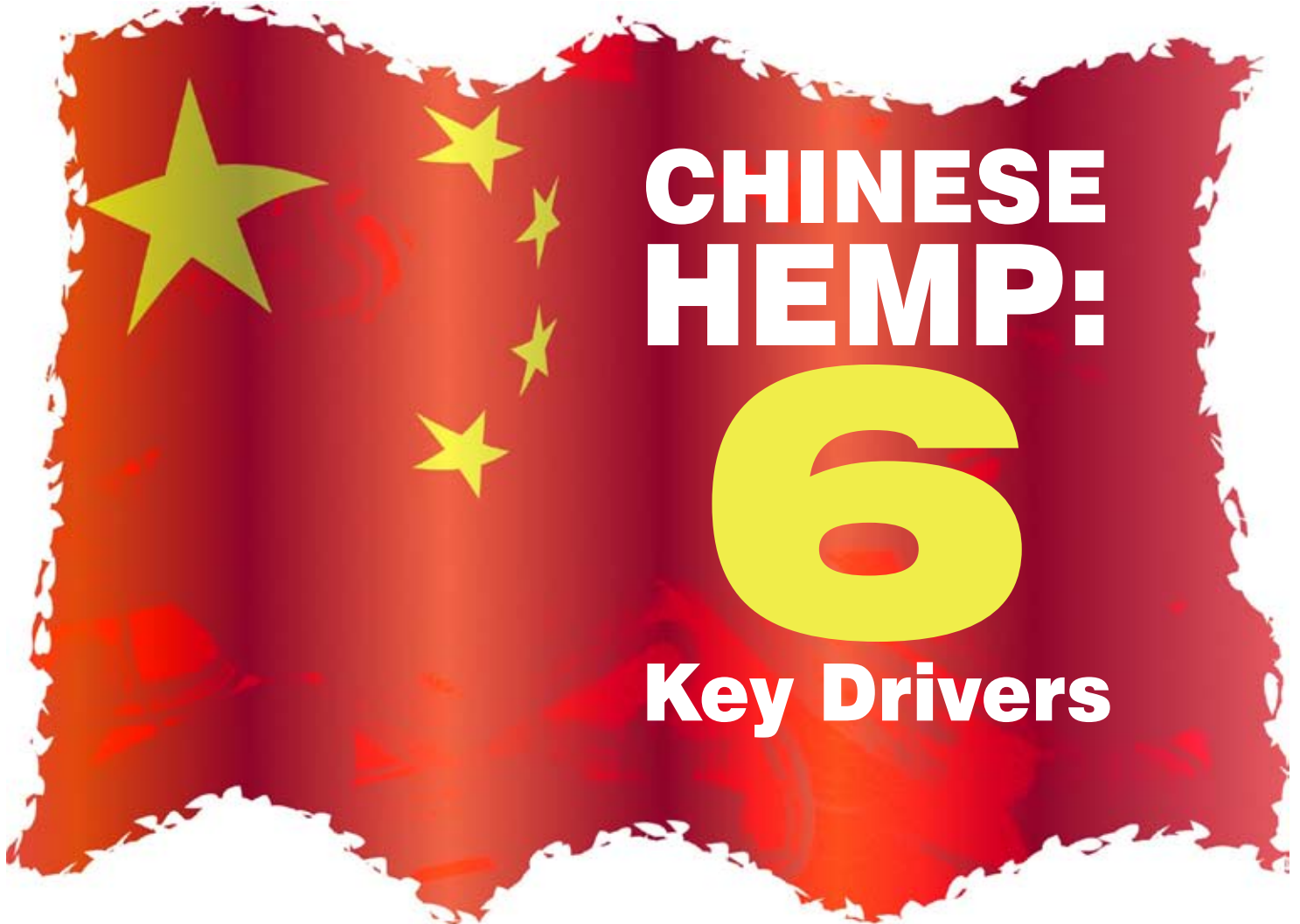
germination and growing strength, it’s a perfect crop to withstand Mongolia’s short summer vegetation period and relatively dry climate,” Anar said.

And with engineering and agricultural knowhow in a rapid development phase, he said Hemp Mongolia is poised to tap into a rich pool of human resources coming out of the country’s historically strong educational system.

International trade corridor

Along the way, the partners have started to popularize hemp and its many applications, talking up the plant’s potential to deliver health products, textiles, building materials, food and cosmetics, and coaxing entrepreneurs to enter those sectors. They see Mongolia, located in geographic heart of Asia, becoming an international trade corridor bridging European and Asian economies. They point to favorable tax incentives, inexpensive labor and cheap land lease fees as investment incentives.

“We’re building a model to attract investors so we can accelerate production and help Mongolia develop one of the most advanced agricultural economies in Central Asia,” Anar said.



CHINESE HEMP:

6

Key Drivers



The Founder of both Hempro Int. and HempConsult, Daniel Kruse has been in the hemp industry since 1995. Hempro Int. is a vertically integrated Dusseldorf-based producer and wholesaler of hemp foods, bulk raw materials for food, textiles, accessories and cosmetics. Daniel is a senior advisor to entrepreneurs, startups, investors and other industry stakeholders through HempConsult GmbH, an independent consulting firm. He has a background in banking and studied in the USA and Germany. He is also a member of the board of directors at the European Industrial Hemp Association. (www.eiha.org), and a Senior Adviser to HempToday.

By Daniel Kruse

In the many years I've been observing the Chinese hemp market, there's never been a more exciting moment than now, as the pieces come together that can shape the Asian giant into the world's leading producer. And it's not only about textiles, as commonly thought. Here are 6 Key Drivers that will shape China's hemp industry over the next decade.



1 Legacy

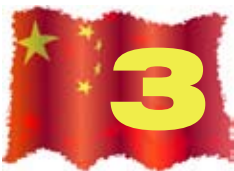
Before a long decline of the Chinese hemp industry that began in the 18th century and continued until the end of the 20th, China was the world's epicenter of hemp, which some experts say dates to circa 2,800 B.C. when hemp strands started to be twisted into rope. And while the industry shrank drastically as worldwide demand trailed off last century, hemp has always been a part of the Chinese culture, most commonly associated with the textile sector. In other words, the Chinese know hemp because they've grown it and fashioned it into end products throughout the millennia.



2 Market & economics

China is vast, and generally considered to have the biggest hemp growing fields of any contiguous market in the world. In one province alone, Heilongjiang, more than 74,000 acres of hemp were harvested in 2017 – more than half of that grown in Canada (115,000 acres, 2017) and well above Europe (33,000 hectares, 2016). Province officials say they'll double the acreage in 2018 – and that is only one province!

Looking well into the future, Chinese authorities earlier this decade rolled out a great plan to plant hemp on 1,333,333 ha. to produce 2,000,000 tons of fibres – and that's only to feed the country's textile mills. Expect textile exports to continue to dominate the hemp industry in China, which in recent years has been exporting about 2 million meters of hemp textiles annually. Aside from a massive domestic market, China is geographically positioned to take advantage of the nearby export markets of Japan, Korea, India and Australia, where demand grows for other hemp products such as cosmetics and food.

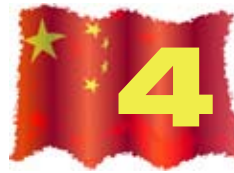


3 Replacing cotton

The Chinese see hemp as a rational replacement for the country's cotton growing and processing industry as it addresses the environmental impact of cotton -- water shortages, soil salinization and pollution from pesticides. As Chinese cotton grows less and less competitive, the Chinese see hemp is a logical, environmentally friendly substitute.

To advance the transition, new processing technology and methods are being

developed to gain fine hemp fibres. Chinese experts have worked out a process using enzymes in the development of those fibers that makes them suitable for processing by the country's vast cotton processing infrastructure to produce pure hemp fabric and blends – all the while going easy on the environment.



4 Beyond textiles

Chinese hemp stakeholders are also looking at expanded use of the plant by moving into such sectors as food, hemp oils, bio-plastics and medicine.

Hemp food and feed products are important markets in China as well as in western countries. Hemp seeds are the initial raw material for a broad range of hemp foods, such as hemp oil or hemp protein. From a nutritional-physiological perspective, hemp food products are immensely valuable. Hemp is rich in polyunsaturated fats and, above all, contains the perfect ratio of omega 6 to omega 3 (3:1). This makes hemp foods, and especially hemp oil, an outstanding alternative omega source for vegetarians and vegans – markets that are expanding the world over.

The Chinese also see a fast-growing market in hemp oil-based cosmetics. Valuable skin care substances in hemp oil make it an ideal, natural ingredient in a wide variety of excellent cosmetic products – cremes, body lotions, bubble baths, shower gels and massage oils.

And they've noticed the small but growing potential in hemp-fibre-based composites such as plastic and fibreglass, applications which are being explored in the auto and construction industries. The Chinese are already using a rougher variant of the hemp fibre to produce lightweight pre-formed doors and shelves.

Finally, as CBD gains importance in both the domestic and global health-care markets, the number of Chinese companies extracting CBD from leaves and blossom grows continuously. As THC becomes legal in a growing number of countries, the Chinese are also well positioned as medical cannabis markets expand all over the world.



5 R&D

At the same time Heilongjiang Province vastly ramped up its hemp farming this year, industry stakeholders intensified their research and development as they continue to refine ways to produce fibres for the textile sector. But researchers in Heilongjiang are also looking into applications for foods and pharmaceuticals. It is exciting to see the Heilongjiang Province, long considered the cradle of Chinese hemp, going back to its

hemp roots.

With labor costs rising, the Chinese realize they need to develop more efficient machines to replace hand sowing and harvesting and to speed up the decortication processes, which now are slow and wasteful. To address those needs Universities from Heilongjiang Province, Ukraine and Canada are conducting comprehensive research to develop new hemp varieties, more versatile and efficient harvesters and new technologies to generate fine hemp fibres, seeds and flowers. Experts expect that harvesting technologies, such as the MultiCombine HC 3400 from Berlin-based HANF FARM, will be one of the key factors for the success of Chinese ambitious plans.

Adding to those challenges is the need to develop cultivars and cultivation practices that maximize yields across the vast country's various climatic and soil regions. More high-quality, high-efficiency hemp strains need to be developed and introduced into the market in an improved and expanded lineup of seed varieties.

Meanwhile, Chinese firms and individuals have secured some 500 patents related to hemp including those for the plant itself, processing, textiles, food, oil, paper manufacturing and medicine, among others. That's well over half all patents for hemp registered worldwide – a clear indicator that forward-thinking firms see hemp's potential in China and around the world.



6 Investor interest

All this has attracted the attention of investors who are welcomed by Chinese stakeholders. At the 2017 International Conference on Hemp Industry in Harbin, more than 300 delegates from China, Australia, Europe and Canada presented success stories from all over the world and discussed future production and marketing strategies for even more and better hemp products. The conference showcased the importance and versatility of the environmentally friendly hemp plant.

Heilongjiang Province particularly is on the right track as it goes about a search for partners in Europe and North America – with wide potential for various forms of cooperation. The province has the resources to start an up-to-date hemp industry and offers subsidies as well as an outstanding infrastructure.

For the investor, it's important to note that Chinese regulations differentiate marijuana and industrial hemp directly in the field by the scientific distinguishing criterion of 0,3% THC*. That's important because as China begins to meet the demand for hemp products it can push the establishment of the 0.3% or higher THC levels in Europe and other markets around the world.

* Small, E. & Cronquist, A. 1976. *A Practical and Natural Taxonomy for Cannabis*.

“This decision will also contribute significantly toward more sustainable farming in Australia.”

Paul Benhaim, CEO
Hemp Foods Australia



Looking up down under

Early entrants poised to cash in on newly opened market

The State of South Australia said recently it is expecting a farm gate value of \$3 million per annum from hemp within five years after recent amendments were tacked on to a state industrial hemp bill by the SA Manufacturing and Innovations Ministry.

While the economics may not sound too impressive, it's nonetheless a signal that things are moving fast in Australia, which classified hemp as a food in November 2017 following 15 years of efforts by stakeholders.

Though hemp has long been cultivated in Australia, with raw materials and finished goods exported to countries like Japan, the USA and Korea, hemp producers are now looking forward to expanding in their own domestic market, estimated at AUS \$13 million in seed and straw production alone – and an expected four-fold increase overall in the coming years driven mainly by the new food and CBD sectors.

Market more than primed: The Australian market has long been ready for hemp foods, with consumers aware of, and attracted to, hemp seed, oil and protein products.

Hemp firms have been quick to enter the local hemp food sector, with the result that hemp is increasingly showing up in restaurants and retail stores. Famous Australian supermarket chains like Coles and Woolworth's are adding hemp products like snack bars, nut butters and breads to their ranges, with the product list only expected to grow.

Having listed on the Australian stock

exchange in January 2018, Elixinol Global is planning to broaden its footprint beyond the four facilities it established in the last five years; its most recent expansion was a state-of-the-art hemp foods processing plant built in 2016 for subsidiary Hemp Foods Australia (HFA), which holds about 80% of the Australian food market share.

HFA has big plans: HFA themselves are planning on producing “thousands of hectares” of hemp in the country, all certified organic, and additionally helping farmers include hemp in their rotations, as well as helping commercial farmers transition to organic practices. Paul Benhaim, CEO of the Elixinol Global, says he is excited for other producers and processors too, believing the Australian sector and global markets will “be big enough for everyone.”

Firms and states that entered the industry early are set to gain most from the reinvigorated hemp industry. Along with South Australia, Western Australia, New South Wales, Victoria, Queensland and Tasmania all are expecting significant growth.

Australia has not only lifted the THC limit for industrial hemp from 0.35% to a full 1.0%, allowing farmers and producers access to better-suited varieties and increasing their global competitiveness in industrial hemp; they are also ramping up efforts for medical cannabis.

“The opportunities for industry development of medicinal cannabis may also provide for high value jobs across the supply

chain from research and development, growing, manufacturing, and transport and logistics,” said Kyam Maher, South Australia's Minister for Manufacturing and Innovations.

The new industrial hemp framework aims to combine industrial hemp and medicinal cannabis into one portfolio to create new opportunities for Australian companies across the food, fiber, and medical sectors. An Office of Medicinal Cannabis and Industrial Hemp also has been created to provide a single contact point for information and advice regarding those sectors.

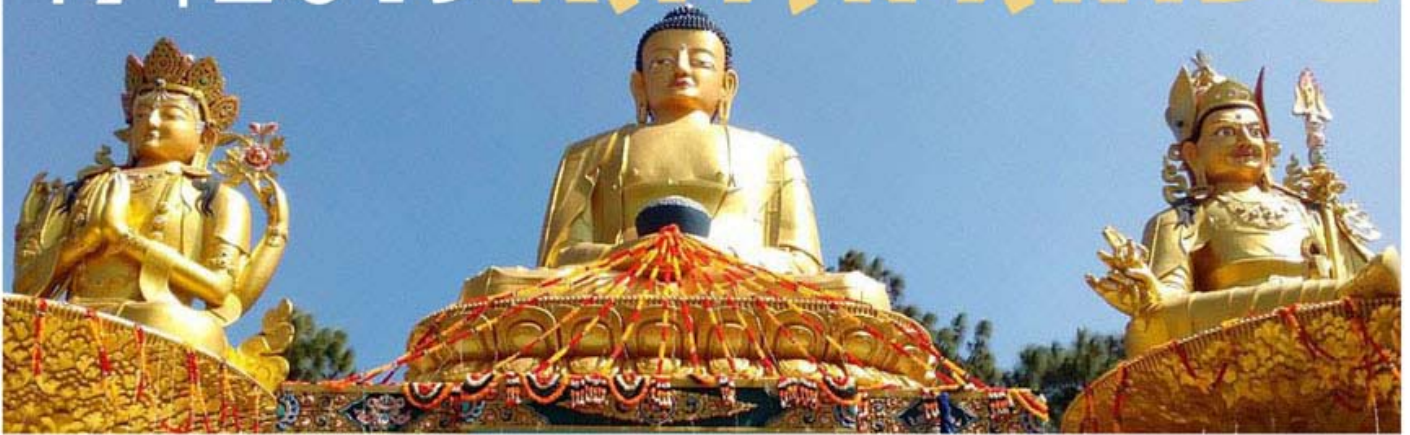
Medical hemp too: Several firms, including a number of Canadian companies, are poised to enter the budding medical sector. Elixinol Australia, part of Elixinol Global, are also set to enter the Australian Medical Cannabis market, with their license submission made in early 2018 and the project in advanced stages, with high-tech greenhouses and purpose built GMP facilities planned.

Meanwhile, Tasmanians want to build on their proven experience growing for medicinal products, as the state already is licensed to grow poppies for pharmaceutical firms (resulting in a \$290 million poppy industry).

After years of non-sensical hemp food laws and bureaucratic paranoia, the hemp industry is finally looking up down-under, with consumers, companies, farmers, state and national government all embracing the new green rush.

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AGENDA

- Investing in Asian Hemp
- Cultivation & Harvesting
- CBD
- Food & Drink
- Health & Beauty, Cosmetics
- Textiles & Accessories
- Building Materials & Construction
- Biocomposites
- Farming Equipment
- Extraction & Other Processing Technology
- Import/Export
- Research & Development

SPEAKERS

(tentative & partial list only)

Dhiraj & Nivedita Shah, Founders
Shah Hemp Inno-Ventures
Nepal

Daniel Kruse, CEO
HempConsult GmbH and Hempro
Int. GmbH & Co., Germany

Riki Hiroi, CEO
Each Japan

Paul Benhaim, CEO
Elixinol Global and Hemp Foods
Australia

Steve Allin, Director
International Hemp
Building Association

Haile Selassie Tefari, CEO
Hemp Services International
France

Xue Rong Long, Operating Director
Xhonglong Hemp & Kenaf
China

Hana Gabrielova, CEO
Hempoint
Czech Republic

Morris Beegle, CEO
WAFBA & NoCo Hemp Expo
USA

Arne Verhoef, President
HempHub
South Africa

Kehrt Reyher, Editor & Publisher
HempToday

Rick Trojan, President
Hemp Road Trip
USA

Anar Artur, CEO,
HempMongolia

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HEMP **He** EVENTS





A Hemp Manifesto for Africa

By ARNE VERHOEF • HEMPTODAY

Hemp could play a major role in achieving nearly every goal of the so-called “Africa 2063” manifesto, and serve in nearly every aspect of the ambitious Accelerated Industrial Development plan for Africa (AIDA), driven by the African Union and the United Nations. There is no better single crop to help modernize African agriculture and bring more industrialization to African economies than hemp, with its adaptability as a crop and its broad array of potential end products.

Hemp can empower the rural poor and address systemic poverty by including small scale producers into agronomic value chains, and through investing in the skills and resources needed to produce the crop. Its many ancillary industries can drive rapid economic advancement, creating jobs and ensuring inclusive economic participation.

Keeping Africa clean

The crop can address food security, increase climate resilience and minimise Africa’s carbon output, keeping it at the lowest in the world without halting progress. It can create carbon-sensitive infrastructure and dignified, healthy and eco-friendly housing for the millions living in shacks and shanty towns.

Because hemp is a perfect crop to address the critical challenges faced by the continent, it should be in the vanguard of efforts aimed at sustainable economic, social and environmental development.

Addressing the barriers

But in Africa, the barriers are significant: The legislative challenges are immense, and a lot of grassroots work also still needs to be done to overcome rampant stigmas about cannabis in general, and to raise hemp’s profile on the continent. The potential of the crop escapes many everyday Africans. In some regions of Zimbabwe, for example, it’s believed that the plant’s seeds are poisonous. This in a country where malnutrition is relatively common due to protein-deficient diets, and where at least one native hemp variety produces an astounding amount of seed - potentially well-suited as seed

crop. The general population needs to be convinced of the plant’s benefits, not just know its religious or recreational use.

Ignorance often extends to the highest levels of officialdom. Our government leaders also need to understand the promise hemp holds. And then they need to develop legislative frameworks and government support programs to facilitate the creation of inclusive hemp value chains all over the continent. Needless to say, getting the rules for hemp right goes hand-in-hand with the need to eliminate cannabis prohibition generally, and reform our approach to this plant.

A ‘savior crop’?

Despite recent advances made in cannabis cultivation on the continent, there is no clear vision or strategy for positioning hemp as the “savior crop” it could be.

High entry barriers such as exorbitant licensing fees promote big-scale, commercial growing that attracts foreign investment but excludes traditional cannabis-growing communities that have historically suffered most from cannabis prohibition.

On the other hand, focusing only on using the crop to empower the rural poor will exclude commercial players, which are needed to achieve economies of scale, build the required infrastructure, drive innovation and open the market.

An Afro-centric strategy

What is needed to realize the potential of hemp in Africa is a combined, multilateral effort where



About the Author

Arne Verhoef is Managing Editor of HempToday. A trained biologist, horticulturist and developer of health products based on CBD hemp and other healing plants, he also manages The Stokvel Collective, a Community Supported Agriculture project that seeks to spread regenerative agriculture through grassroots action.

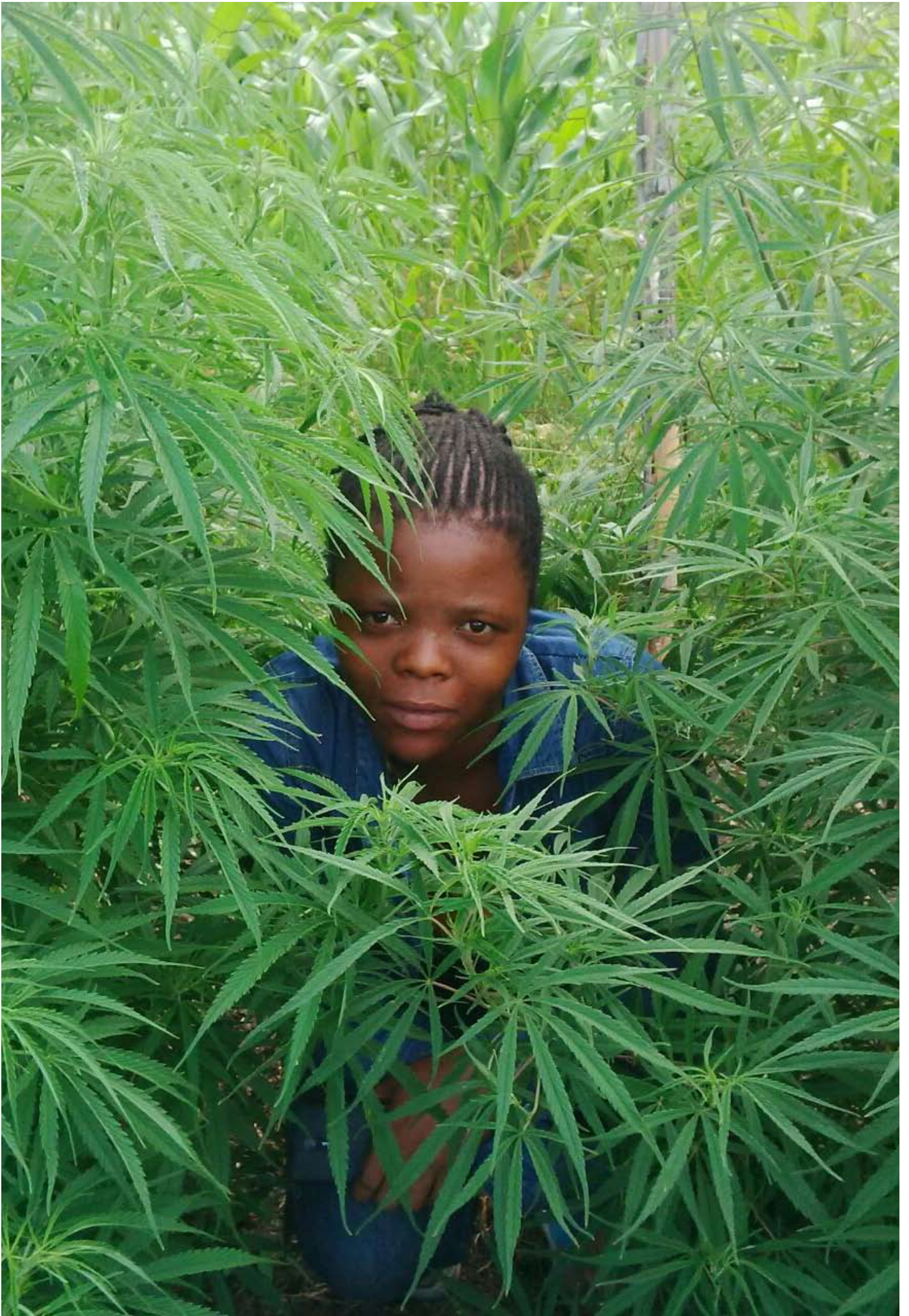


PHOTO: WILLIAM WALLACE

AFRICA

governments, policy makers, advocates, researchers, farmers and other stakeholders come together to formulate strategies that promote the hemp industry in an Afro-centric way.

With strong institutional leadership and a population awakened to the benefits of the crop and its countless products, honorable collaboration and policies based on sustainable development, social welfare and regenerative resources, hemp can emerge as a powerful tool in addressing the challenges of the continent.

Despite its many challenges, Africa has a unique opportunity: To leapfrog into the 21st century, adopting future-oriented development strategies while avoiding the mistakes and pitfalls of the “developed world” – from negative social outcomes to high environmental costs due to carbon-intensive industries and dirty technologies.

Hemp, along with a select few other crops, can turn Africa into a global leader in the a bio-based economy focused on intelligent agriculture and regenerative resources, social progress and green innovation. Hemp can, if we have the vision and make the effort, be the flagship that sails Africa into the 21st century.

A continental strategy

With strong institutional leadership, hemp can emerge as a powerful tool in addressing the challenges of the African continent. A successful strategy will:

- Require strong institutional support and leadership
- Drive broad legislative rehabilitation, including legislative protection of “savior crop” status
- Find solutions suited to the African context, e.g. modular/mobile processing equipment, cooperative production.
- Prioritize empowerment of women and youth
- Incorporate and protect needs and markets of both small-scale and commercial actors.
- Protect the genetic resources of African Cannabis
- Identify regions well-suited to production of industrial Cannabis, invest in infrastructure and agronomic support
- Pinpoint rewarding end products to focus on such as Canada did by putting their focus on seed
- Foster agricultural research, such as genetic improvement and selective breeding for desired traits
- Incentivize industrial uses of Cannabis products through funding research, subsidies, technical support, industry incubators and innovation hubs
- Deregulate small scale production and cooperative models, and regulate commercial activity
- Coordinate multilateral training, skills and knowledge transfer, awareness and education campaigns.

– AV

HISTORY



Cannabis: Choice of the Zulu warrior

In areas of Kwazulu Natal, it's recorded that the Zulu men smoked cannabis for hunger suppression and battle readiness, an interesting anecdote on the effects of Tetrahydrocannabinol, a cannabinoid predominant in certain southern African cannabis landraces.

Cannabis Sativa -- hemp -- is nothing new to Africa and was no doubt among the many forms of cannabis introduced to the continent at different times throughout history; many believe it was first brought here by Arab traders.

While a full account of cannabis in Africa is difficult to recreate -- with much of the history destroyed, lost or mystified -- we do know that recreational and religious use of cannabis has been and always will be widespread; likewise the incorporation of the plant into indigenous medicine systems and rituals.

Cannabis has a long history in as healing agent in Africa, with records showing its traditional use in treating asthma, bronchitis, headaches and migraines, labor pains, epilepsy, colds, flu, sleeplessness, diabetes and even hair growth.

– AV

South Africa: A cautionary tale

Despite starting research trials on the agronomic feasibility of hemp between 1994 and 1996 when the South African government started growing cannabis to make the THC isomer Dronabinol for the United States, South Africa has yet to properly legislate for hemp cultivation and use.

A study done by Camila Coogan, “The South African hemp story: Saviour Crop or Business as Usual?” details some of the trials and tribulations that has plagued the South African hemp industry. Many of the challenges stem from legislative barriers, while others stem from bad politics, differing stakeholder priorities and lack of any clear vision or consolidated efforts for a viable hemp industry.

Advocates, activists and commercial interests are challenging the lack of progress, and uniquely, cannabis prohibition is being challenged as unconstitutional and in violation of human-rights in SA courts. Meanwhile private stakeholders continue to advocate for legalization or de-regulation of cannabis, and are working to establish a hemp industry despite the legal and political challenges. A Cannabis Development Council of South Africa formed in late 2017 aims to facilitate industry growth.

The South African experience through 20 years can provide valuable insight to other countries on pitfalls and policy approaches to avoid as they slowly wake up to the potential of the crop:

MALAWI: In 2015 Malawi announced their trials on hemp, with promising results and enthusiastic reports on their findings and progress filtering through. One

private company, Invegrow, has reported successful croppings of hemp seed varieties, and foresees a bright future for agricultural production in the country. Malawi is quickly set to become a voice in industrial hemp for the continent.

ZIMBABWE: The government recently rolled out a program for medical cannabis and hemp production which includes research trials. Permits for commercial growing, costing \$50,000, brought the government more than \$7 million in application fees in the two weeks following the announcement. Three weeks later, however, the government started back-peddling, putting licenses on hold until “feasibility studies” could be performed and to sort out a legislative framework.

DR CONGO: While the country is mired in conflict, it is also a large producer of cannabis. Details are difficult to come by, but commercial operations to produce cannabis (for export) are already underway. Revenue and biomass from cannabis can go a long way in rebuilding the country.

MOROCCO: Africa produces the most cannabis is the world, according to most sources. In Morocco's Rif region, where a world famous landrace has been growing for hundreds of years, advocates are turning to the impressive amount of stalks produced as by-product (some 8,000 tons annually) for building houses and to develop local economies in the region.

LESOTHO: Cannabis has been the primary cash-crop of the tiny mountain kingdom of Lesotho for many decades. It has taken steps towards formalization of this market, issuing a medical cannabis licence to a South African company. – AV

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Driven to INNOVATE

INTERVIEW: **Kelly Knutson**, CEO at Colorado-based Isolate Extraction Systems Inc., an industry leader in the development and production of next-generation supercritical extraction technology.

HempToday: How important is hemp in your constellation of customer/partners?

Kelly Knutson: Hemp is very important to IES on a financial and personal level. We believe that hemp and CBD products are going to change the world and help millions of people live longer, healthier, and happier lives. We are in the process of designing and building a CO2 machine that is not only faster and more efficient than ethanol, butane, or steam, but also has the ability to automatically separate terpenes, oils and waxes mid-process.

HT: Where are the geographic growth markets for your technology?

KK: From Australia to Denmark there are many growth markets for our technology in 2018. Interest has been growing for commercial and laboratory scale machines in Canada, Central & South America, Europe, Australia, and of course in the United States.

HT: How fast is extraction technology changing, what's driving the pace and how do you keep an edge? What makes IES technology stand out?

KK: Driven by high demand and fast return on investments within the cannabis industry, extraction technology and competition are advancing at a steady rate. Innovation and commitment to create the highest quality product has been the primary catalyst to our success and will continue to be in the future. Versatility, consistency, and dedication to our clients drives us to create the best extraction machines available.

HT: You stress helping your customers meet safety standards and building codes. How do you address that internationally, country by country?

KK: Even within the US, nearly every municipality has slightly different requirements for equipment, facility, and operational safety. As it relates to international codes, we work with leading certification agencies and local suppliers to ensure our machines are compliant with international and coun-

stency of potency. Knowing that stricter dosage regulations were coming, we abandoned the original recipe in order to meet these regulations. Our solution was to extract and infuse the product with oil.

At that time (2011) there were not many producers of oil within the industry. The cost was high but the value was even higher. I knew then that there would be an ever growing demand for extracts and therefore machines to do the extraction.

Having worked with several groups that did their own extractions, using both butane and CO2, I knew many of the difficulties they had encountered and believed I could create a better machine that was easier to use.

On December 7, 2012, I filed the paperwork with the state of Colorado and registered for a federal EIN.

The next day with \$10,000, I opened a bank account and started production of the first machines. A few months later I deposited another \$30,000 to finish the prototypes. Then, after four months of successful operation we began production of larger, fully automated versions. We now have more than 100 machines across 45 U.S. states and five countries.

HT: What's next for IES?

KK: This year is going to be a big year for us. We are positioned to expand into several new geographic markets and industries. I believe the biggest challenge in 2018 and 2019 will be scaling equipment for large commercial farmers who need to extract thousands of acres per year. Our goal is to be the premier CO2 equipment supplier for large agricultural operations.

'We believe that hemp and CBD products are going to change the world and help millions of people.'

– **Kelly Knutson**, CEO, Isolate Extraction Systems

try codes and directives. Canada requires a comprehensive review of every component on any machine or device. Most of Europe requires compliance with standard machinery directives as well as pressure equipment directives; however Denmark for example has slightly stricter compliance requirements for working environments.

HT: Describe the startup phase for your company. What was its genesis? How did you finance it?

KK: In 2010 I was presented with an opportunity to create and implement the production system for a cannabis infused beverage called Keef Cola. The original used cold water extracted hash, "keef," that was a suspension of solids instead of an emulsion. This leads to difficulty in the design of the bottling procedure and con-



At a Glance:

**Isolate
Extraction
Systems**



CEO: Kelly Knutson

Founded: 2012

Core business: Leading edge development & production of CO2 supercritical extraction technology.

Online: isolatesystems.com

Headquarters:

1886 Prairie Way, Suite 200
Louisville, Colorado 80027
USA

Tel: +1 720-541-7301

Email: info@isolatesystem.com

International:

Morten Krug/IES Europe
Esrumvej 89
DK-3000 Helsingør
Denmark

Tel: +4540871428

Email: krug@isolatesystems.com

Canada turns to CBD

After Korean seed market evaporates, a shifting of the gears

Despite a mini-boom in hemp seed exports to South Korea that quickly turned into a mini-bust, Canadian hemp stakeholders are still upbeat as they look forward to changes anticipated under a proposed new licensing regime for industrial hemp growers – and the promise it offers in the lucrative CBD market.

“Their (South Korea’s seed) market helped to partially clear a burdensome carry-over in 2016, but now that has improved so there is no need to discount the market,” Russ Crawford, President at the Canadian Hemp Trade Alliance (CHTA), told HempToday.

“While Crawford said Canada returned to the Can\$100 million (\$79 million) export mark for 2017, stakeholders expect fields will be down in 2018 as farmers turn a bit skittish.

United States remains the biggest export destination for Canadian hemp seed, with about 90% of output going south across the border. But with Chinese seeds beginning to hit the U.S. market, Canadian producers could be under increasing pressure.

Meanwhile prices are falling. Crawford said hempseed prices have dropped about 20 cents this year, to around 55 cents per pound.

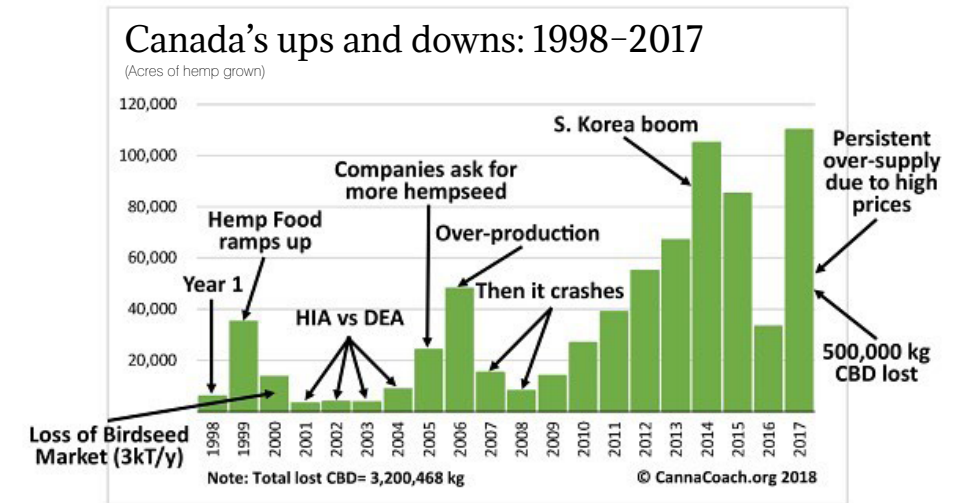
Canada exported a total of about Can\$72 million (\$57 million) worth of hemp seed in 2015; with South Korea’s contribution of nearly Can\$45 million (\$35 million) in 2016, that figure jumped to Can\$123 million (\$97 million), according to figures from Statistics Canada and CATSNET Analytics.

‘Korean bubble was real’: “The Korean bubble was real for Canada,” another source close to the situation told HempToday. After a few Canadian pioneers entered the market in 2015, “many other Canadian companies rushed in to service the vast food market in Korea,” the source said, where telemarketing has created strong consumer demand for hempseed food products.

“The bottom fell out when the South Koreans realized that the Chinese have been churning out hulled hemp seed in tonnage quantities, and at less than half the net price,” the source said.

That’s left Canadian farmers again sitting on a lot of seed inventory for the present, which could be a constraining factor in the growth of hemp fields this year.

Fields under hemp in Canada last year were reported at 55,380 ha. (137,000 acres),



while 681 commercial growing licenses were handed out, according to Health Canada figures.

Asia can still be export market: “The loss of that (South Korean) market hurts but it wasn’t the most profitable in any event,” CHTA’s Crawford noted. With shelled hemp seed trading for about Can\$9/kg (in small retail units) in the USA, the South Koreans were buying bulk shelled seed for about Can\$4 per kilogram from Canadian producers. Crawford said one South Korean buyer offered just Can\$2 per kilogram for bulk seeds recently.

But Crawford said he sees seed exports developing in other Asian countries – Thailand, Taiwan, Japan and even China. “Australia and New Zealand will also be strong buyers of Canadian seed now that it is a legal product there.”

Turning attention to CBD: Despite the downturn in demand for seed from South Korea, Canadian Hemp is not licking its wounds but turning its attention to the much bigger opportunity in CBD as the market looks forward to changes anticipated under a proposed new licensing regime for industrial hemp growers.

Part of a broader Cannabis Act covering both marijuana and hemp, the new regulations would allow farmers to sell hemp flowers and leaves – parts of the plant required to process CBD which have heretofore been illegal to harvest in Canada. The CHTA, farmers and even Canadian doctors have pushed for clear rules on CBD, citing the sector’s economic potential and the promise the compound has shown in treating certain maladies. Most notable, Canadian hemp proponents point to the

U.S. CBD market, where sales are predicted to reach \$2-3 billion over the next 4-5 years. U.S. CBD product sales in 2016 were estimated at just \$202 million, according to Hemp Biz Journal (USA).

Big players getting ready: Major players are already making moves in anticipation of Canadian marijuana and hemp rules changes. Ontario-based Canopy Growth, an incumbent licensed marijuana processor, recently announced the acquisition of Green Hemp Industries of Saskatchewan where it says it can eventually expand hemp fields to more than 2,000 acres. Also, Australia-based Creso Pharma recently acquired Mernova Medicinal Inc., Halifax, in anticipation of developing a cultivation facility where it will grow plants for its nutraceutical products.

Despite the optimism, hemp stakeholders and observers say they still see a need to push for fundamental changes that will truly open up the CBD market.

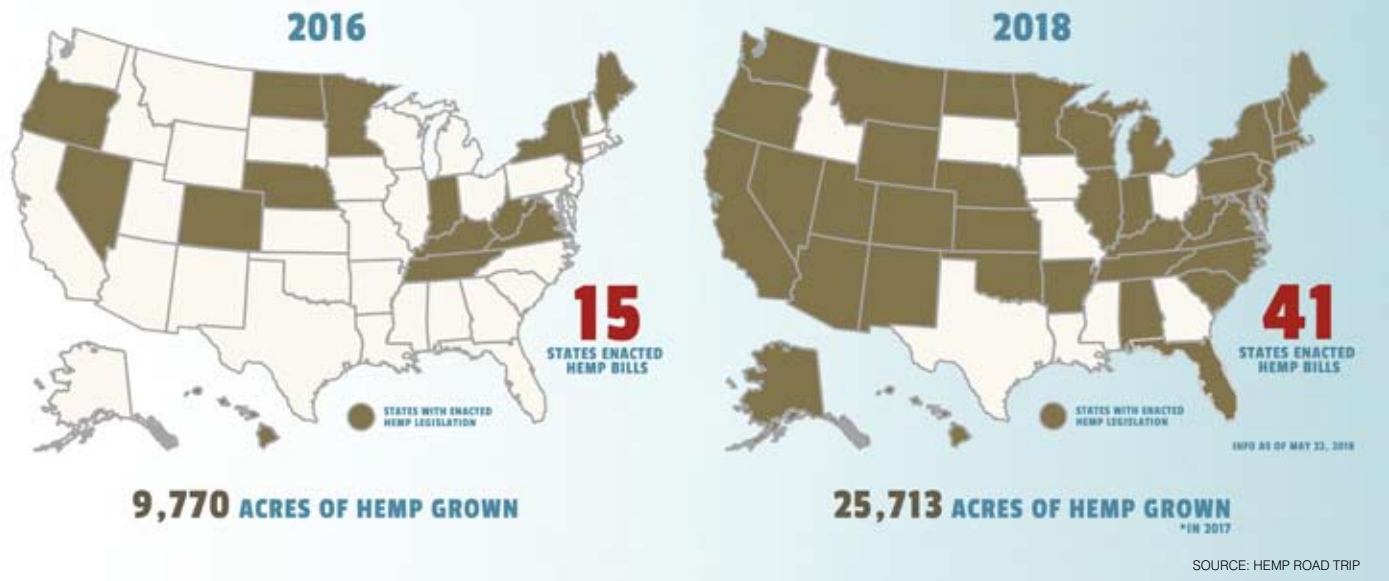
First, the Act as now drafted would require licensed growers of hemp to gain additional permits to process and market CBD, limiting the sale of flowers and leaves to the 20 or so Canadian companies licensed to process and sell CBD – primarily those that are already processing medical marijuana in Canada.

Meanwhile the government already has made changes in the oversight of hemp to better align its regulation with the proven low public health and safety risk of the crop via a new Cannabis Act adopted at the end of last year; the Act notably moved federal oversight for hemp from the Controlled Drugs and Substances Act to the new Cannabis Act.

Rules changes also have eliminated the need for THC testing for most hemp crops.

Rapid expansion

Twenty-six U.S. States have enacted hemp legislation since 2016.



Spreading the green

41 states now have hemp legislation on the books in USA

New hemp pilot programs are coming online in several U.S. states as a result of developments in late spring 2018. The expansion of the USA's federally controlled hemp program brings to 41 the number of states with hemp legislation now on the books, and anticipates a loosening of U.S. laws covering hemp under a bill expected to be voted on this year – and which has strong support among both Democrats and Republicans.

“There’s tremendous excitement throughout the USA regarding hemp,” said Colorado-based entrepreneur Rick Trojan of the advocacy project Hemp Road Trip. “More mainstream folks are discovering hemp for food and clothing, and as they begin to learn more they’re realizing this plant can be a non-toxic alternative to nearly everything they consume,” Trojan said.

Kansas, Oklahoma, New Mexico

Kansas passed hemp legislation April 20, 2018 with Oklahoma following on April 23. Legalization in New Mexico came only after the state’s Supreme Court overturned a series of vetoes by Gov. Susana Martinez in 2017. Martinez had blocked state hemp bills despite their passage by a Democratic-controlled State Senate and a Republican-controlled State House of Representatives.

The program in Kansas – a traditional wheat, corn and soybean-growing state – is under an “Alternative Crop Research Act”

that lets the state’s Department of Agriculture coordinate studies in cultivation and other aspects of processing and production. The Department is developing rules and regulations for the pilot program.

In Oklahoma, where wheat is the major crop, the state’s hemp measure passed the House of Representatives unanimously, and received only one dissenting vote in the state Senate. The pilot program, to be overseen by the state’s Department of Agriculture, Food and Forestry, will allow universities and farmers who contract with universities to grow the crop.

Department of Agriculture officials in New Mexico, where the primary agricultural crop is hay, said they are already getting inquiries from both big and small farmers who are interested in growing hemp. Hemp also proved itself to be a bipartisan issue in that state, with strong support from both Republicans and Democrats.

Under the N.M. program, New Mexico State University’s board of regents must sign off on hemp regulations before growers can apply. State officials said the rules should be ready by autumn 2018.

Still, with hemp strictly controlled under federal and state laws, the industry in the U.S. looks likely to cede critical markets and sectors to more forward thinking, faster moving nations around the world if things don’t change – and fast.

“As this excitement grows, we must remain vigilant to provide accurate informa-

tion and education, so that this burgeoning industry will establish a solid foundation,” Trojan said.

One need only look north to Canada to see the impact hemp can have on a national agricultural economy. Despite Canadian hemp’s ups and downs (story, p. 36), stakeholders have built a full-fledged industry in a very short period of time.

Entrepreneurs forge ahead

In spite of uncertainty in the U.S. market – particularly over CBD – entrepreneurs are forging ahead, and more and more seed is going in the ground as the consumer market continues fast-paced growth.

Procuring high quality plant genetics tailored for local growing conditions continues to be a challenge. With U.S. hemp programs under federal control that prohibits moving planting seeds across state lines, low volumes available lead to high prices, according to National Hemp Association (NHA) Executive Director Erica McBride – an equation that affects many aspects of the industry. NHA says it is working to overcome delays in shipments of certified planting seed to avoid problems U.S. stakeholders suffered in past years when deliveries, in many cases, didn’t arrive until June. Many U.S. growers depend on seed and expertise from Europe, a critical partner as American hemp looks to the future.

“Creating relationships with experienced

NORTH AMERICA

European stakeholders is a great option for suppliers and market drivers, as access to the largest hemp market (USA) will need support and supply from Europe," said Morris Beegle, founder of We Are or Better Alternatives (WAFBA) and Colorado Hemp Company, organizer of the Denver-based NoCo Hemp Expo.

Pioneers push forward

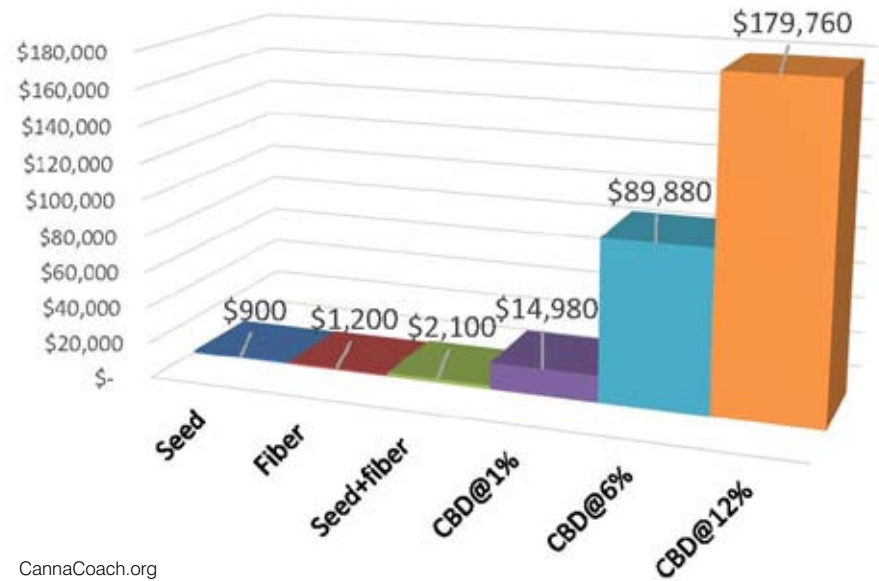
Despite general turbulence, U.S. industry pioneers are pushing forward. Colorado-based New West Genetics announced the first U.S.-bred hemp seed in early 2018. The new breed, called NWG Elite, is a dioecious strain primarily for large-scale grain production. It is the first U.S.-developed planting seed to be certified under standards of the Association of Official Seed Certifying Agencies (AOSCA).

Nonetheless, high CBD certified seed strains remain impossible to find through official channels. This leaves farmers in states with new hemp programs on the sidelines of the CBD game unless they want to take the risk of bringing seeds or clones across state lines.

U.S. hemp stakeholders see a recent Drug Enforcement Agency internal directive on CBD as a step forward for the industry. The directive, which gives guidance

Where's the money?

Revenues per acre, Canada & USA combined: Seed, fiber, CBD



CannaCoach.org

for DEA staff and field agents, clarified that cannabinoids are in fact not illegal under the Controlled Substances Act (CSA) if they come from a legal source.

CBD advocates have generally suggested a three-tier regulatory framework

that places high doses of CBD in a medicinal, prescription-only category, but which frees CBD-laden products with lower percentages to be sold on the open market over the counter as food and health supplements.



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ABOUT



Rick Trojan brings over 21 years of entrepreneurial expertise to the hemp community along with a vast global network and passion. He understands the need to accurately portray the benefits of a once flourishing plant stigmatized through a century of propaganda.

Trojan constantly strives to build a platform to encourage Hemp and its positive impacts through strategic alliances, currently expanding his education to other continents where cannabis legalization has led to an industrial boom. His work assists in uniting the industry on a global scale by bridging the gaps, building the foundations and extending the global network.

DONT MISS YOUR CHANCE TO HEAR RICK SPEAK AT THE BALKANNABIS EXPO AND THE EUROPEAN INDUSTRIAL HEMP ASSOCIATION THIS JUNE



PURPOSE

Hemp Road Trip's mission is to increase awareness on industrial hemp through a global grassroots campaign. Educating the public, influencing policy makers, and creating economic growth opportunities by ending the prohibition and misunderstanding of industrial hemp. Utilizing the vast network along the road to show the multipurpose plant in its many useful forms for : **Health, Energy, Manufacturing, Planet.**



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