



Cannabidiol (CBD) INDUSTRY REPORT

An investigation into one of the fastest growing markets in the wellbeing sphere. This report acknowledges the controversial timeline of various CBD products, compares the industry's presence in different geo-political landscapes and takes a look at some of the M&A activity from leading CBD businesses.

SEDULO

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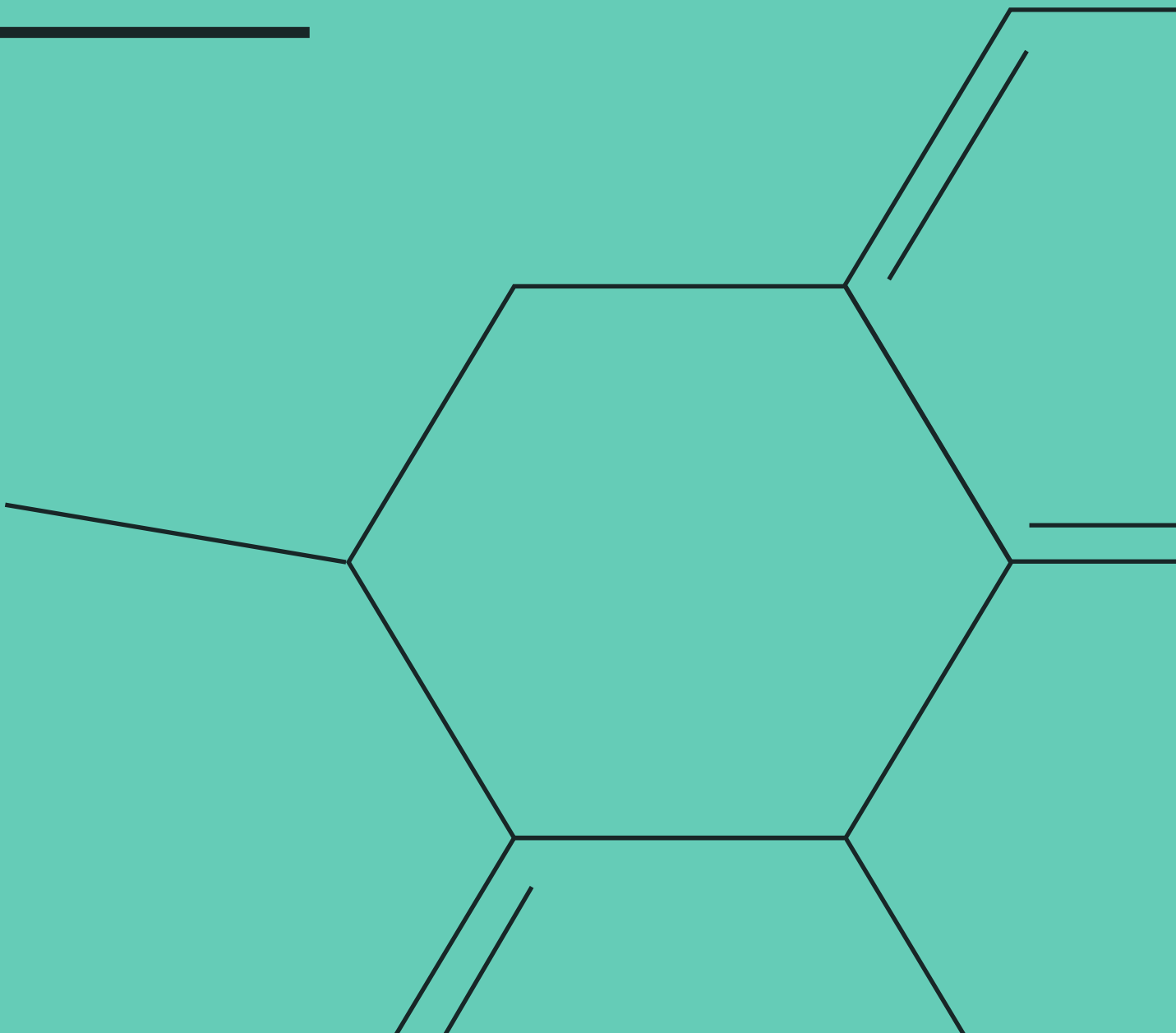
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Cannabidiol (CBD), a compound found in cannabis has blazed through the UK market and is set to be worth £1 billion by 2025.



1.0

Executive Summary

CBD has become one of the fastest-growing wellbeing product categories in the UK, currently worth more than Vitamin B and Vitamin C combined (Centre for Medical Cannabis). Praised for its therapeutic properties, CBD has been recognized to treat anxiety, pain and improve sleep and is used by 1.3 million Britons.

A license isn't required to buy or sell CBD unless making medical claims. This lack of regulation has attracted 'CBD cowboys' resulting in a populous, competitive market concentrated mainly online. The increasing demand for differentiation between brands has inspired a diverse product range from standard supplements to food and drink, beauty, pet food, and subscription boxes.

Celebrities are also cashing in on the trend which is not expected to burn out anytime soon. Household names such as Kim Kardashian and Gwyneth Paltrow have endorsed CBD products from mints to infused tea. Seth Rogan has collaborated with Canadian giant Canopy Growth to create a CBD brand, while Martha Stewart has developed a range for pets only. Celebrity engagement has helped to create conversations around CBD and highlight its healing nature despite negative perceptions.

Large corporations, high street brands, and sports teams are hoping to capitalise on the growing CBD market. WH Smith placed a purchase order to retail Ignite the CBD brand created by 'Instagram King' Dan Bilzerian. On a bigger scale creator of Corona Beer, Constellations Brands invested \$4 billion in Canadian group Canopy Growth who went on to purchase British beauty brand, This Works, for £43 million with the hope of developing CBD cosmetics. The world's first transatlantic sports team

and Sedulo client Toronto Wolfpack has also entered the CBD marketplace, becoming the first sports team to do so by launching an infused topical cream called 'Rugby Strength'.

The biggest challenge currently facing the UK CBD market is the restrictions enforced by the Home Office. The reluctance to grant hemp growing licenses has resulted in CBD being imported from the EU and America, which could be disrupted by Brexit outcome. Restricting the cultivation of cannabis is a wasted opportunity for both British farmers and the government to create, tax and control a rapidly growing industry.

On the contrary, the UK is the largest exporter in the world for legal cannabis exporting 95 tonnes in 2016. British giant GW pharmaceuticals are the second-largest cannabis firm in the world and most recently agreed to provide CBD drugs to the NHS. Although still widely regulated, the approval for CBD to be prescribed by the NHS is a huge steppingstone for CBD in the UK.

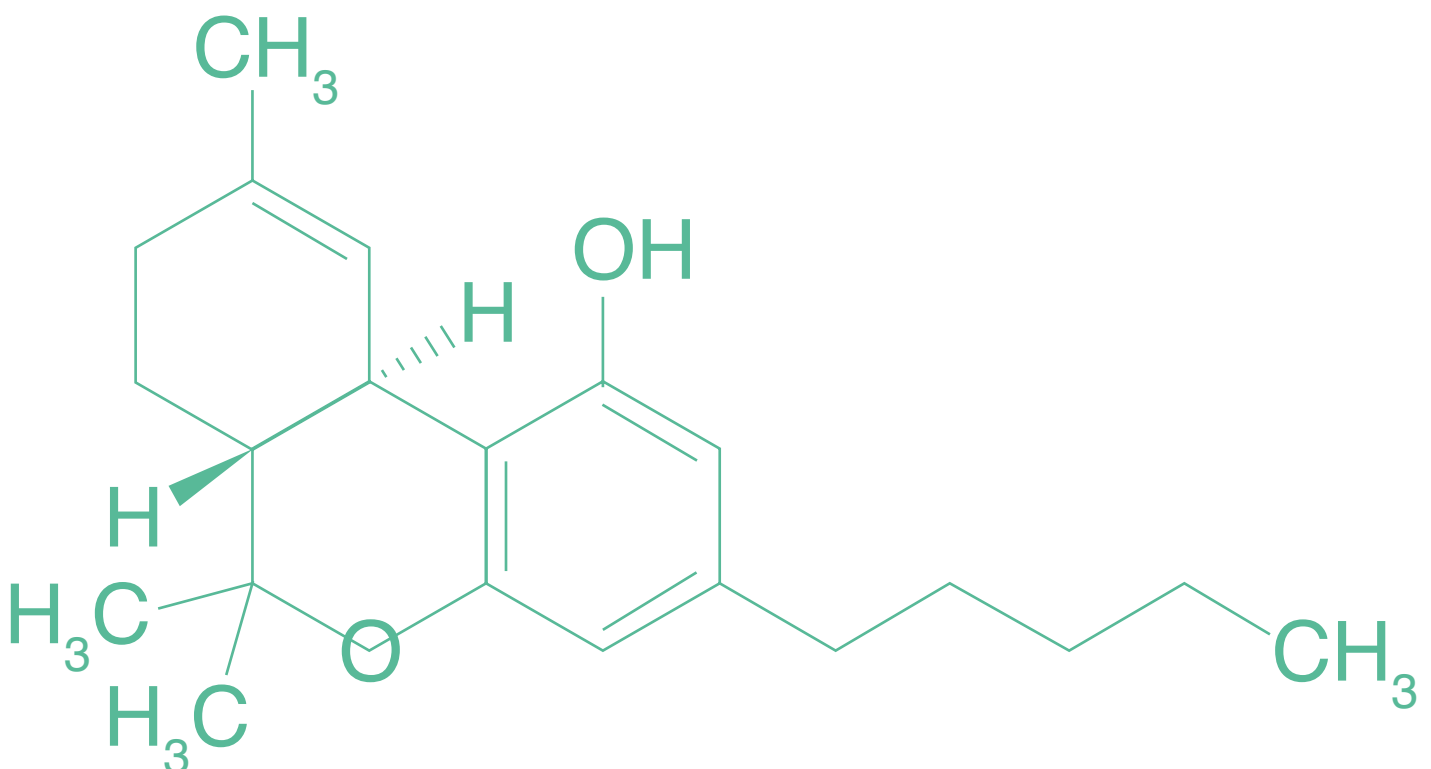
The UK CBD industry is forecasted to bring increased product diversification and intense competition thanks to the willingness of consumers to try products. Issues that need resolving are a basic level of regulatory rules and for the UK government to capitalise on the opportunities that CBD presents.

2.0

Evolution of CBD

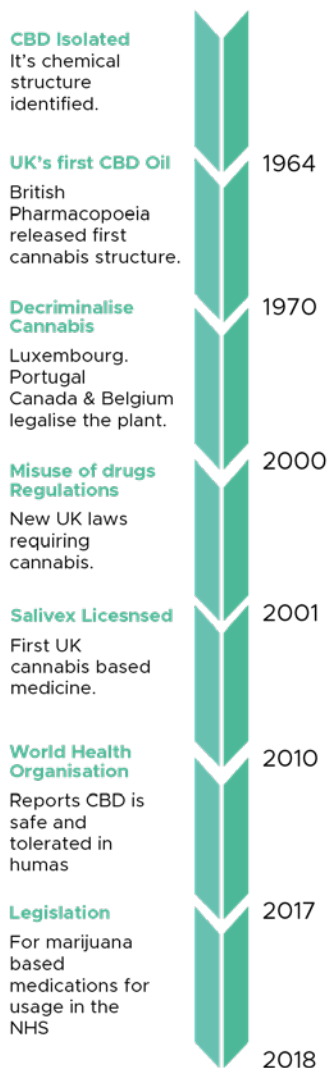
Cannabidiol (CBD) is one of more than 120 compounds called cannabinoids and is extracted from the bud, flowers, and leaves of industrial hemp also known by its Latin name the Cannabis Sativa plant. Hemp and marijuana are two versions of Cannabis Sativa and both produce CBD and THC (tetrahydrocannabinol). CBD and THC have the same chemical formula containing 21 atoms, 30 hydrogen atoms, and 2 oxygen atoms.

The arrangement of these atoms is what separates the two plant species, giving CBD and THC different chemical properties and effects on the body. Hemp's high levels of CBD and a small concentration of THC means it does not produce a euphoric "high" or psychoactive effect. Due to the small traces of THC, CBD products are legal to buy and sell in the UK and have been recognised for their medicinal and therapeutic properties.



2.1

CBD Timeline



CBD oil was discovered in 1940 by Roger Adams after being successfully isolated from the Cannabis Sativa plant. However, unable to identify its chemical structure it wasn't until 1964 that CBD's scientific elements were made public.

In 1970, British Pharmacopoeia released a cannabis tincture which is a medicine made by dissolving a drug into alcohol and was the first CBD oil of its kind in the UK. Launched during the hippie era the tincture was received with negative perceptions and stereotypes which unfortunately still impacts the CBD industry today.

The 2000s was a decade recognised for change in the cannabis industry with Luxembourg, Belgium

and Portugal decriminalising the drug. Canada legalised cannabis for medical usage resulting in its medicinal benefits became widely recognised. The UK's Misuse of Drugs Regulations (2001), under new laws, allowed for the cultivation of cannabis (hemp) with a license from the Home Office.

GW Pharmaceutical's CBD mouth spray 'Sativex' was licensed in the UK in 2010. This was the first licensed cannabis-based medicine to be prescribed in the UK but only under

special circumstance to multiple sclerosis (MS) patients.

A turning point for the CBD industry was the World Health Organisation's (WHO) 2017 report which concluded that CBD was safe and tolerable in humans. The report dismissed the potential of addiction or abuse in CBD usage and ruled out the possibility of major side effects.

The Billy Caldwell campaign made a huge impact on the UK's medicinal cannabis and CBD laws. In June 2018, Heathrow Airport confiscated CBD oil from a child suffering severe epilepsy. The CBD oil which was imported from Canada had enabled Billy to live 300 days seizure-free since beginning its course. Hours after the airport incident the twelve-year-old suffered his first seizure in almost a year. Billy's story received mass media coverage and caused public outrage which forced the Home Secretary to review UK laws on cannabis subsequently being approved to prescribe by specialist doctors.

2.2

Hemp Oil vs CBD Oil

Hemp oil is made from cold-pressed hemp seeds, it is highly nutritional and rich in Omega 3 and 6. It contains little to no CBD or THC and is widely used in cooking and beauty products due to its nutritional benefits. CBD oil is produced using the stalks, leaves, and flowers of the hemp plant consist of high levels of cannabidiol and low levels of THC (legally not exceeding 0.2%).

3.0

Market Overview

The CBD market is one of the fastest-growing wellbeing product categories in the UK with 4 – 6 million Britons having tried CBD and 1.3 million regular users. The market is currently valued at £300 million and continuing at its current growth rate, is estimated to be worth £1 billion per annum by 2025 (Centre for Medical Cannabis, 2019).



3.1

Market Drivers

Health-conscious consumers and holistic approaches to wellbeing have been an underlying force in the popularity of CBD. Consideration of mind, body, and spirit has increased demand for more natural alternative ways to manage health and wellness.

In 2019(Mintel) half of all new vitamin, mineral and supplements (VMS) launched contained botanical and herbal ingredients. New consumer perspective has enabled CBD to penetrate the market and is worth more than Vitamin D (£145M) and Vitamin C (£119M) combined (Centre for Medical Cannabis, 2019). The consumption of alcohol has reduced and 1/5 UK adults stating they do not drink illustrates the shift in lifestyle choices, which CBD conforms to.

CBD has the opportunity to position itself in the market as a medicinal

substitute for prescription drugs. Studies have proved its anti-seizure, anti-inflammatory and pain-relieving properties and have been recognised to improve insomnia and anxiety disorders. 28 million people currently affected by chronic pain (NHS), 6 million anxiety disorder sufferers (Anxiety UK) and 86% of adults reporting high levels of stress in the last 12 months (Mintel). 38% of UK adults and 50% of those aged 18-34 said they would prefer to use CBD oil over prescription drugs to manage their mental health verifying that there is a growing interest in this product.

3.2

Market Channels

E-commerce sites are the most popular marketplace for consumers, despite CBD being made available in many pharmacies, supermarkets, and health food stores. Wowcher, one of the UK's largest discount websites stated that in 2019 their CBD sales increased by 99% rivaling the likes of Holland & Barrett's, Boots and Sainsbury's.



3.3

Grown in Europe, sold in the UK

According to the British Hemp Association, there are an estimated 810 acres currently under cultivation in the UK not including medicinal greenhouses, compare this with Europe's 33,000 hectares and it appears that the UK is not capitalising on a booming industry. Instead, the UK has become reliant on the EU and the rest of the world for the main ingredient. By restricting domestic harvesting, it has undermined the UK's competitiveness in a key growth sector. The UK CBD market is set to be worth £1 billion by 2025 but under the current law, none of this will go to UK farmers and producers.

3.4

Market Challenges

Imports are subject to a complex supply chain that could be seriously impacted by a 'no deal' Brexit. Netherlands, Bulgaria, Germany, and Denmark are some of the EU countries supplying the UK, other popular import destinations include California and Canada. The EU remains by far the UK's largest trading partner with 53% of all UK imports from the EU. Caught up in a haze of uncertainty, Brexit is particularly worrying due to the likes of high import tariffs being introduced. However, if Home Office granted more licenses to Hemp Farmers it would be a great opportunity to boost the British farming community as well as the rural economy.

In 2016, the Medicines and Healthcare products Regulatory Agency (MHRA) said that any CBD product claiming health benefits need to acquire a license. CBD companies must enter the same process as new medicines which can be timely and expensive. Few brands pursue this route due to its unattractiveness and the consequence of this means there are no basic standards set on product quality.



3.5

Centre for Medical Cannabis (CMC): Test of UK CBD Market

Experiment: 30 CBD oil products (30ml) from both online and offline stores where selected for blind testing by PhytoVisto Laboratories. This experiment aimed to identify the quality of the CBD products currently available to consumers.

Results:

11/19	0%	14/29	3.8%
had less than 50% of the advertised CBD content	CBD was found in one product retailing at £90	Had over the legal limit of THC	Ethanol was found in one product which qualifies as alcoholic beverage



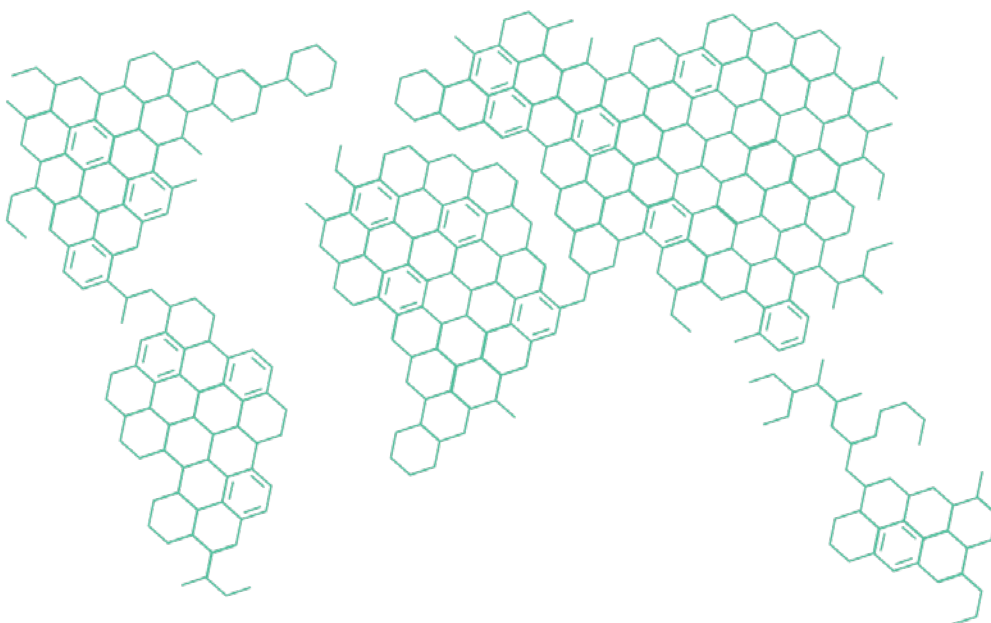
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3.6

Global

The majority of the world's largest cannabis-based producers by market cap are based in Canada, followed by the USA. Both countries are driving the market with an array of cannabis-infused consumer goods. British company GW Pharmaceuticals is the second-largest global cannabis firm after Canopy Growth (Canada). Three factors have helped these companies become industry leaders.

1. First mover advantage: GW Pharmaceutical has dominated the UK market and is the only company to have approval from NICE and subsequently supplying the NHS with cannabis-based medicine. North America has the most mature market and a large customer base allowing companies to scale up.
2. Equity investments: Largest investments to date have come from beverage giant Constellation Brands with a \$4 billion investment into Canopy Growth and tobacco company Altria's \$1.8 billion investment to Canadian Cronos Group.
3. Acquisition: The growth of cannabis companies is largely attributable to brand alliances and M&As. The market is becoming increasingly dominated by large cooperations as they buy out both competitors and insurgent brands. Canopy Growth acquired Acreage Holdings for \$3.4 billion and Love Hemp an established UK brand was bought by World High Life (WHL) for £9-£10 million. The acquisition of Love Hemp will allow WHL access to an established online distribution network and a significant presence in 1,200 convenience stores in the UK.



4.0

Industry Leaders

	Company	Turnover	Type
1.	Zoetic International PLC	GBP 1,016,399	Stock exchange
2.	CBD Health Goods LTD	GBP 971,040	Private Limited Company
3.	Natural Hemp Company LTD	GBP 801, 010	Private Limited Company
4.	Love Hemp LTD	GBP 742,520	Private Limited Company
5.	UK CBD Distribution LTD	GBP 575,945	Private Limited Company
6.	MGC Pharma (UK) LTD (Pharmaceutical licensed)	GBP 507,350	Stock exchange
7.	Winchester MD Limited (Green BioSciences)	GBP 506,462	Private Limited Company
8.	TYV CBD LTD (Wholesale, tobacco and CBD)	GBP 498,683	Private Limited Company
9.	Hope CBD Limited	GBP 496,000	Private Limited Company
10.	Hemp 2 Wellness LTD	GBP 444,000	Private Limited Company

4.1

Acquisition Deals in the UK

Acquisition of AF Trading Ltd by Namaste Bahamas Inc

13 Sep 2018 | **Status: Pending** | **Value: £3,869,866**

Namaste Bahamas Inc, a Canadian trader of medical cannabis consumption devices through distribution centres and e-commerce sites, a subsidiary of Namaste Technologies Inc, has signed a binding terms sheet to acquire all issued and outstanding shares of AF Trading Ltd (trading as Access Fulfilment).

AF Trading based in Kent has been operating for 15 years and are a licensed pharmaceutical distribution company, their low-cost transport connection to the UK and Europe attract overseas clients and help them to establish sales in the preferred market. Consideration was agreed on US \$5m, 50% in cash and 50% in Namaste stock shares.

Acquisition of Theros Pharma Ltd by Wayland Group Corp

27 Nov 2018 | **Status: Pending** | **Value: £27.8 Million**

Canadian based 'Wayland Group Corp' produce and distribute marijuana for medical purposes have acquired 51% of Theros Pharma Ltd registered in Newcastle Upon Tyne and trading from North Shields, an importer of cannabis to the UK for people with prescriptions.

Wayland Group Corp formerly known as Maricann Group Inc made an initial payment of GB £3.8m followed by a second payment of GB £24m once agreed milestones were achieved. One being the issuance to Theros of a license to cultivate cannabis in the UK or a license to import medical cannabis for use in the UK.

Acquisition of This Works Products Ltd by Canopy Growth Corp

22 May 2019 | **Status: Pending** | **Value: £43 Million**

Canopy Growth Corp, Canada manufacturer and distributor of medical cannabis acquired British beauty brand This Works Products Ltd for £43 million. They plan to create a range of cannabidiol infused skincare and sleep products. This acquisition comes off the back of the Aug 2018 investment from Constellations Brands, producer of Corona beer. Canopy Growth received \$4 billion for 38% of its shares.

Acquisition of Beckley Canopy Therapeutics Ltd by Canopy Growth Corp

9 Aug 2019 | **Status: Complete** | **Value: Undisclosed**

Beckley Canopy Therapeutics Ltd is an innovative research and development cannabis-based health production facility in Oxford that was also acquired by Canopy Growth for an undisclosed amount. There is a strict focus on intellectual property protections a subsidiary of Beckley Research & Innovations Ltd, who manufacture pharmaceutical preparations.

Acquisition of Project Seed Topco Ltd by Sundial UK Ltd

2 Jul 2019 | **Status: Complete** | **Value: Undisclosed**

Sundial UK Ltd, a subsidiary of Sundial Growers Inc, Calgary, Alberta, Canada, a cannabis producer, acquired Project Seed Topco Ltd, London, England, the holding company of Bridge Farm, a grower, packer, and supplier of plants, flowers and produce, from NorthEdge Capital. Terms not disclosed.

Sundial UK Ltd, a subsidiary of cannabis producers Sundial Growers (Canada) acquired Project Seed Topco Ltd, the holding company of Bridge Farm. Bridge Farm supply chain capability, retail relationships and competitive capacity will bring many possibilities for Sundial Growers. Likewise, the Canadian group will allow BF to expand their expertise and grow high-quality plants to produce premium CBD.

The Acquisition was followed by an £18m cash injection from HSBC and NorthEdge Capital (PE) for the construction of a 75-acre production facility. Their square feet structure size is estimated to increase to 3.5 million by 2021. This will be one of the largest fully automated, protected growing facilities in Europe.

Acquisition of Love Hemp Ltd by World High Life Plc

23 Sep 2019 | **Status: Pending** | **Value: £9 million**

World High Life Plc, London, England, which owns and operates a CBD and medicinal cannabis investment company, has acquired Love Hemp Ltd, Epsom, England, which supplies a range of CBD and Hemp products. World High Life is proposing to acquire Love Hemp for a minimum consideration of GB£9m. The consideration will be satisfied as to GB£4m in cash on completion; this amount will be satisfied from the Company's existing resources and from the proceeds of a proposed fundraising which the Company may conduct either by way of placing of ordinary shares of 1p each in the Company or by way of a convertible instrument to raise up to GB£5m; GB£3m to be satisfied by the issue of 30,000,000 Ordinary Shares on completion.

Up to GB£2m of deferred cash consideration in the three years following completion, on the following basis; GB£650,000 if by the first anniversary of completion, the turnover in Love Hemp is between GB£5m and GB£7m, GB£650,000 if between the first and second anniversary of completion, the turnover in Love Hemp is between GB£9m and GB£11m; GB£700,000 if between the second and third anniversary of completion, the turnover in Love Hemp is between GB£12m and GB£15m. If Love Hemp achieves more than the turnover target in a given year, the sellers will be entitled to additional earn-out of 5% of the excess over the turnover target in each earnout year. The payment of any element of the deferred consideration is conditional on the gross profit of Love Hemp remaining at the same level as in the year ended 30 June 2019

Canopy Growth

Stock shares

Canadian cannabis company formerly known as Tweed Marijuana Inc. was renamed in 2015 and has been very active in acquiring pharmaceutical-related companies and other associated markets such as This Works and similarly their investment from Constellation Brands. This backing by the popular drinks brand has enabled Canopy to release a range of premixed beverages infused with CBD & THC in the USA. The level of THC in these beverages is still illegal in the United Kingdom but is a trend making its way across the Atlantic.

Development Capital for TCOC Ltd

11 Jul 2019 | **Status: Pending** | **Value: £500,000**

TCOC Ltd (The Cannabis Oil Co), Derby, Derbyshire, England, which provides cannabis oils, announced the intention to raise GB£500,000 to fund the production of cannabis oil products, in Crowdcube. The Cannabis Oil Co has already raised more than GB£358,700 of its target through Crowdcube after attracting almost 600 investors.

Acquisition of Iuvo Therapeutics GmbH by Wundr Co

15 Aug 2019 | **Status: Complete** | **Value: Undisclosed**

Wundr Co, London, England, which owns and operates a cannabis company, has acquired Iuvo Therapeutics GmbH, Neuss, Germany, which distributes medical cannabis. Terms not disclosed.

Manchester Northern Monk bar and Green Times Brewing collaborated to create a CBD IPA in July 2019. The 7.2% ABV ale contains 10mg of CBD per pint and is made using a water-soluble form of cannabinoid. The science speculated with mixing CBD and alcohol is CBD's anti-inflammatory effects, which can help the liver process alcohol more effectively and hopefully reduce hangovers.

5.0

Situation Analysis

5.1

PESTLE Analysis



Political

- Brexit – Import/export could be impacted by 'no deal' Brexit and uncertainty regarding high import tariffs.
- The lack of political stability currently in the UK adds to uncertainty.
- UK Government backing of GW Pharma and encouragement of market monopolisation.
- Cannabis Trade Association UK (CTAUK) established to help improve CBD trade and works with the government to establish legislation.
- Bilateral relationships – Medicinal cannabis industry strong ties with Europe and North America. GW pharmaceutical operates globally and has a marketing agreement with Bayer for the sale of Sativex in N.A.
- Political hypocrisy: In 2016 it was revealed that the Drug Minister Victoria Atking's husband was the Managing Director of British Sugar who was granted a license to grow cannabis for medical research (GW Pharma). Theresa May's spouse, Philip, was also the relationship manager at Capital Group who own the majority of shares in GW Pharma.

Economic



- Rapid growth rate current market value of £300 million and estimated to reach £1 billion by 2025.
- A propensity for consumer spends – average £55 per month on CBD products (Centre for Medical Cannabis, 2019)
- Consumers have to spend if they cannot be prescribed by the NHS i.e. those who do not have the two rare forms of epilepsy / MS.
- NHS has started funding for CBD medicine – Sativex & Epidyolex.
- The value of STG could change due to Brexit and consequently affect import/export rates.
- Opportunity to increase jobs if the monopoly was changed for medical cannabis.

Social



- 4 – 6 million Britons have tried at least one CBD product, there are 1.3 million active users and 45% population have used CBD in the past year (Centre for Medical Cannabis, 2019).
- Lifestyle choices play a significant role – health and wellbeing, veganism, natural products.
- Demographics: CBD products are more accepted by 18-34-year-olds but not limited to that generation.
- Consumer tendency to purchase online despite being available in high street stores – Holland & Barrett, WH Smith.
- Cultural norms & values: There is a taboo surrounding cannabis and the lack of education on the differentiation between CBD and marijuana has left a stigma, particularly with the older generation.
- The legalisation of Cannabis has the potential to drop anti-social behaviour and reduce crime rates and has proven successful in the USA and Portugal.
- Due to government grey area, VC's and banks are reluctant to invest in CBD business.

Technological



- E-commerce websites are the main marketing channel for CBD suppliers, the lack of regulation and a vast amount of space has attracted the 'CBD cowboys' trying to make a quick profit.
- Internet infrastructure enables anyone to sell CBD products from anywhere.
- Communication – consumers must rely on forums and reviews for the benefits of products available online due to the restriction on claiming health benefits.
- The UK's leading pharmaceutical resources and technology are strong assets moving forward in CBD / medicinal cannabis industry.
- New technology giving way to advanced research into the neurological effects of CBD.
- Apps are available for tracking symptoms, dosage, feelings with information and advice available for users.

Legal



- Retailed CBD products are only legal in the UK if they contain no more than 0.2% THC.
- GW Pharmaceuticals patents grant them legal action against anyone replicating their products. They currently have 42 UK patents against competitors and more overseas.
- If a CBD product wants to make health benefits or medical claims, it must undergo the same process as a new medicine via MHRA. This is expensive, time-consuming and off-putting for brands.
- NICE approved two cannabis-based medicines for usage in NHS but is still widely restricted. Only people with two rare forms of epilepsy (8,000 people) can be prescribed CBD compared to the 500,000 Britons who suffer epilepsy.
- Two licenses are available for cannabis cultivation from the Home Office: High THC cannabis license for medical research only and low THC cannabis (Hemp).
- Novel Foods: CBD oils, foods, drinks and supplements under EU regulations may require manufacturers to submit a Novel food application so they can market CBD foods in the EU. The application takes approx. 24 months and cost £30-£80K.
- Consumer rights law – faulty CBD products increase the risk of negative association and public perceptions deflecting from its therapeutic properties.
- Lack of health and safety regulations surrounding CBD retail products (case study).

Environmental



- Hemp farming can reduce toxicity, remove radioactive chemicals and restore damaged soil.
- Paper made from hemp can reduce deforestation and pollution associated with it.
- Hemp can protect the environment through bioremediation, it consumes four times as much CO2 as trees.

5.2

Industry Analysis

Competitive Rivalry / Intensity of industry rivalry

- The emerging monopolisation of the UK medicinal cannabis industry as GW Pharmaceuticals signs agreement to supply the NHS and multiple patents.
- In retail, the intensity of rivalry is extremely high with hundreds of brands online and offline offering similar products and resulted in the term CBD cowboys.
- Established brands have an advantage by creating a CBD brand extension as they are already recognised in the market.
- Lack of differentiation in the industry - "Differentiation creates reasons for purchase, which cost leadership does not" (Hooley et al., 2017:46).

Threats of New Entrants / Potential Competitors

- Huge corporations like Coca Cola, PwC, Deloitte and KPMG are already banking on the CBD industry, potentially increasing the barrier of entry.
- No license requirement, small start-up cost, and low risk increase the threat of new entrants and a potentially high volume of competitors.
- Low retention of brand loyalty due to lack of cost and product differentiation.

Bargaining Power of Suppliers

- The major suppliers to the CBD industry are hemp producers, manufacturers, and distributors.
- Due to Home Office laws, hemp must be imported overseas. These producers have a medium to high bargaining power as they are aware of UK restrictions and the demand for the product. They're able to negotiate higher prices and favourable terms, which potentially could lower industry profitability.
- In terms of manufacturers/distributors there bargaining power is also relatively low as this is a populous sector. It can be done in house or outsourced to white label companies offering a range of services from labelling, compliance, distribution, and wholesale. The main risk with this is the quality of the product produced, but with no basic standards, it is hard to measure.

Bargaining Power of Buyers

- CBD customers have a considerable amount of bargaining power, CBD companies have a hard time differentiating themselves and their products because of the range of competitors in the industry. Limited switching costs from one competitor to another makes it difficult to create customer loyalty.

Substitute Products

- There is little threat of substitutes for CBD as it currently dominates the vitamins, minerals and supplements industry. It is only found in the Cannabis Sativa plant and synthetic CBD products, priced similarly to not currently pose as a threat as it overlooks the natural health trend driving the CBD industry.

5.3

Internal Analysis / SWOT Analysis

Strengths

- CBD products are safe and tolerable in humans (World Health Organisation Report, 2017).
- NICE recommendation allowing medicinal cannabis for usage in NHS – treatment of Epilepsy and Multiple Sclerosis (MS).
- Rapidly growing market valued at £300 million – Estimated to be worth £1 billion in 2025.
- Already strategically positioned as a key player in the VMS industry – CBD currently has a higher market share than Vitamin C & D combined.
- The UK is the largest exporter of legal cannabis – average 95 tonnes per annum.
- Cannabis Trade Association UK (CTAUK) – represents 4,000 businesses in the cannabis/hemp industry to ensure good practice and works with the government to establish legislation.
- Established consumer market – 1.3 million regular users / 4- 6 million have tried the CBD products.
- Diverse demographics with no age limit.

Weakness

- Overcrowded and competitive market (retail level) due to limited start-up cost and little risk, resulting in products to be produced easier and replicated in a short period of time.
- Difficult to differentiate brands and products.
- Remains a legal grey area – growing and selling.
- Lack of basic standards and quality control of products sold.
- Brands/companies don't have to register or obtain a license to sell unless claiming health benefits.
- Reluctance from Venture Capitalist (VC's) and banks to invest - fear of legal and regulatory repercussions.
- Medicinal Monopoly Industry: GW Pharmaceuticals has the only cultivation license in the United Kingdom from the Home Office and the MHRA.
- UK government not capitalising on the booming industry which results in a restriction on hemp farmers.
- Difficult legal practice to be registered with MHRA & FSA registration – unattractive.
- Taboo and stigma surrounding CBD due to lack of knowledge and particular branding.

Opportunities

- Government control and reap tax benefits.
- Economic growth and job opportunities.
- Continued expansion for online sales (e-commerce) and demand from high street brands (increase footfall/drop in revenue).
- Affiliate relations with related vendors i.e. horticulture, beauty brands, manufacturers.
- Increase in clinical trials and research into the effects of CBD and cannabis-based medicines.
- Development of proprietary products – Rugby Strength Toronto wolfpacks.
- Global trend – opportunities to expand / partner with companies in North America, Europe, Australia.
- Economic and environmental benefits of Hemp farming and CBD production.

Threats

- Brexit: Challenges for import/export, including raised tariffs.
- Uncertainty regarding the long-term effects of CBD and cannabis-based medicine.
- Too little information and too much product.
- No government-enforced standards on products – Quality control test.
- A requirement for continuous innovation – both medically and at retail level.
- Multinationals such as PwC, Deloitte, KPMG, and Coco-Cola have dedicated cannabis teams in Canada – creating difficulty for start-ups.
- Noval foods EU.

6.0

Consumer Goods Market

The CBD consumer goods market is highly competitive with increasing demand for new product development and innovation. Small start-up costs and low risk have contributed to this populated market. Many products are similar such as supplements, drops, creams and it is very easy for a product to be replicated in a short timeframe. The lack of differentiation in the cost of products makes it increasingly hard for brands to create loyalty with the consumers.

The diversity of products is constantly changing from CBD for pets, CBD infused drinks and even CBD pillowcases. The most popular products in the UK are pure oil (58%), followed by CBD vape juice or e-cigarettes (21%) and creams (11%). There has been particular growth in the cosmetic market with 26% of women seeking CBD beauty products (Mintel, 2019).



6.1

Proprietary Products

Another industry thinking outside the box is the beverage group with major players such as Diageo and Coca-Cola in talks to develop a CBD infused drink range. Constellation Brands, creator of Corona made a \$4 billion investment and increased its stake to 38% in Canopy Growth Corp. a Canadian cannabis-based company.

Manchester's Northern Monk bar and Green Times Brewing collaborated to create a CBD IPA in July 2019. The 7.2% ABV ale contains 10mg of CBD per pint and is made using a water-soluble form of cannabinoid. The science speculated with mixing CBD and alcohol is CBD's anti-inflammatory effects, which can help the liver process alcohol more effectively and hopefully reduce hangovers.

In 2018 the World Anti-Doping Agency (WADA) removed Cannabidiol (CBD)

from its list of prohibited substances which accelerated its popularity in the sporting world. As athlete careers are limited, many professionals have created CBD brands for their portfolio.

Birmingham FC and Green Monkey CBD have partnered to become the world's first CBD sport's sponsorship agreement. The club located at St. Andrew's Trillion Trophy Stadium will sell a range of Green Monkeys carbonated drinks on match days.

Sedulo Sports client Toronto Wolfpack are the first professional sports team to enter the CBD marketplace. The transatlantic rugby league team is hoping to modernise the way athletes deal with pain by creating 'Rugby Strength' a CBD infused topical cream. Similarly, England and Wales rugby players George Kruis and Dom Day launched Fourfivecbd, their range of products includes CBD oils, capsules, balms, and muscle rubs to help athletes maintain an active lifestyle.



6.2

Celebrity Endorsement



Professional poker player and 'King of Instagram' Dan Bilzerian has expanded his CBD brand Ignite into the UK market with a purchase order from retail agent WH Smith. The contract will enable their Ignite ONE rechargeable vape pen to be stocked in 276 stores including prime sites such as Heathrow, Gatwick, Birmingham and Manchester Airport as well as Kings Cross Station. This partnership will provide Ignite with a strong retail presence as approximately 192 million people enter these WH Smith locations each year.

The infamous Kim Kardashian celebrated the upcoming arrival of her fourth child with a CBD themed baby shower. Guests could make their own CBD bath salts and oils and enjoy samples of brands like Mr.Moxeys CBD mints, Pure Ratios CBD patches, and Grön confectionary. Younger sister Kylie Jenner has also endorsed CBD products on Instagram praising CBD infused 'Happy Tea'. With both women in the top 10 most-followed accounts on Instagram, they have access to a mass audience and the ability to educate followers on CBD.

Other major celebrities who are known for their use of CBD are Jennifer Anderson, Emma Roberts, and Gwyneth Paltrow via her wellness

platforms Goop. Actress Whoopi Goldberg co-founded Whoopi & Maya and created CBD products aimed at targeting menstrual pains. CBD has also been recommended by celebrity stylist to help relieve aching feet in killer heels.

Both Seth Rogan and Martha Stewart have collaborated with Canadian cannabis giant Canopy Growth to create a CBD brand. Stewart developed hemp-derived CBD products for animals. Celebrities using their influence to bring the industry into the spotlight has helped to create conversations around CBD and cannabis instead of associating it with a taboo.

6.3

Subscription Models

Subscription boxes are a great way for consumers to try different CBD products to see what works best for their body, as all bodies are unique and react to cannabidiol differently. UK based Prime CBD was the first to launch this service after noticing a pattern in their consumers' purchase habits. Similarly, Serenity Box & Co offer a boutique box which includes 4-6 products from different brands each month. Subscription-based services offer convenience and help increase brand loyalty in a challenging market.



Medical Cannabis

'Medical cannabis' is a broad term for any sort of cannabis-based medicine used to relieve symptoms. These medicines are all based on a part or parts of the cannabis plant. Medical Cannabis has been made legal in the UK and two drugs are available from the NHS. Epidyolex a pure oral form of CBD is prescribed for Epilepsy and Sativex an oral mouth spray for Multiple Sclerosis (MS) more research is needed to find out if products containing THC are safe or effective to prescribe.

7.1

National Health Service (NHS)

Billy Caldwell's national campaign was the first advancement in the UK which pushed for the review of cannabis-based medicine. The ruling by the Home Secretary in late 2018 allowed specialist doctors (not GP's) to prescribe medicinal cannabis under certain conditions, which only happened in a handful of cases. It wasn't until November 11th, 2019 that the National Institute for Health and Care Excellence (NICE) approved the two cannabis-based medicines - Epidyolex and Sativex - for use by the NHS.



Epidyolex, a purified CBD oral solution has been recommended for children with two rare and severe epilepsies – Dravet syndrome and Lennox-Gastaut syndrome. It's estimated there are 3,000 people with Dravet and 5,000 with Lennox Gastaut syndrome in England so this decision means more people will be able to access Epidyolex if their previous treatments haven't worked. The NICE announcement follows the European Medicines Agency (EMA) decision in September to license Epidyolex for use in the European Union (EU) and previously, only a small number of people had access under an Early Access Programme (EAP).

The second treatment, Sativex is a mouth spray that contains a mix of THC and CBD in the ratio of 1:1. It

has been approved to treat muscle stiffness and spasms (spasticity) in Multiple Sclerosis (MS) but cannot be prescribed for pain. Available on the NHS Wales since 2014, it is the first medicine with THC to be licensed in the UK. Sativex is not recommended for pregnant women and people under 18 years old.

The recommendation from NICE means that there is now a process and funding in place to make medicinal cannabis available in the NHS. Before this, the NHS has been advised by NICE that both drugs were not cost-effective and should not be prescribed. The Epidyolex drug will cost the NHS between £5,000 and £10,000 per patient each year and Sativex cost's approximately £2,000 a year per patient.

7.2

GW Pharmaceuticals



GW Pharma is a Cambridge based biopharmaceutical company and was founded in 1998 by two doctors - Geoffrey Guy and Brian Whittle. They were first commissioned by the government to create a safe cannabis-based medicine to treat Multiple Sclerosis (MS) and launched their first prescriptions cannabis-derived drug Sativex in 2010 followed by Epidyolex.



7.2.1

GW Cannabis Farms

Believed to be the largest fully legal medical cannabis-growing operation in the world, GW grows 30,000 cannabis plants of a non-psychoactive variety, in two enormous greenhouses located in Kent. In 2016, British sugar phased out their tomato production to begin supplying the biotech GW with Cannabis Sativa.

The company which has a license from the Home Office currently crops a mass area of 23 football pitches. Before it's approval to be used in the UK these farms exported the product worldwide, UN report found that 70% of the world's legal cannabis in 2016 came from the UK, a total of 95 tonnes.

7.2.2

GW Patent

Patents are granted in the UK to protect inventions, giving the patent-holder the right to take legal action against anyone who replicates their creation. Biological processes such as the cannabis plant cannot be patented, however, the process used to make a particular medicine can be owned under property laws. This prevents competitors from marketing similar products. GW Pharma is estimated to have taken out 42 patents already and in the process of applying for many more. Mixed opinions have stemmed from this with people claiming GW Pharma is attempting to entrench its monopoly position within the UK's medical cannabis market while others appreciate that patents are essential when researching and developing new drugs.

7.2.3

GW Competitors

Grow Biotech a British medical cannabis start-up collaborated with IPS Specials and European Cannabis Holdings (ECH) to facilitate the first bulk importation of cannabis-based medicine in the UK.

Spectrum Therapeutics an international medical cannabis company was granted a license by MHRA to import medicinal cannabis from their facilities in Germany and Denmark directly to their UK base in Buckinghamshire. The parent company, Canopy Growth is backed by Constellation Brands the maker of Corona Beers and was the first cannabis company in North America to be publicly traded.

Another North American company, Tilray was one of the first to import a bulk supply of medical cannabis oil to the UK. This helps to reduce waiting time on patients' prescriptions and avoid them buying from the black market. Tilray has partnered with Budweiser brewer Anheuser-Busch InBev NV to research cannabis-based beverages. Both Tilray and Canopy Growth have relationships with major beverage brands looking to enter the CBD market.

7.2.4

GW Future Plans

Thanks to recent approval by NICE GW Pharma will provide the NHS with both Epidyolex and Sativex according to the terms agreed with the Department of Health and Social Care (DHSC) in their commercial arrangement. The company products have been available in the USA since November 2018 and are now in the market in the UK, France, and Germany. Their plans for 2020 are to expand into Italy and Spain's pharmaceutical market, while submitting an FDA application to treat tuberous sclerosis complex and is testing the med against Rett syndrome in a phase 3 study.

8.0

Licensing

There are two licenses available from the Home Office relating to cannabis cultivation, according to whether the varieties are high or low THC.

Cultivation of High THC cannabis

Licenses are only granted for the cultivation of High THC cannabis under research purposes and the extraction of cannabinoids (CBD & THC) to be used in cannabis-based medicine products.

Low (Hemp) THC cannabis

Licenses are issued for the cultivation of cannabis plants with a low THC content for the production of hemp fibre for industrial purposes or the obtaining of seeds which are then pressed for their oil. There needs to be a defined commercial end-use, THC content cannot exceed 0.2% and only the non-controlled parts of the plant (seeds, fibre, mature stalk) can be used.

UK hemp farmers recently were not permitted to harvest the leaves, flowers, and buds of the hemp plant due to recent changes in legislation. These parts of the plant which are used to make CBD oils are effectively classed under the generic term of 'cannabis' and fall in the scope of the Misuse of Drug Act along with other controlled substances thus, it is very difficult to obtain a license for CBD oil purposes. Only one company in the UK has been granted a license to utilise these parts of the plant, Jersey Hemp located on the British Isle can harvest hemp flowers for cannabis oil.

8.1

Hemp Growing Licence

To obtain a hemp growing licence you must first register with the home office and submit an online application via their drug licensing website. Personal contact details must be provided along with field location numbers, names or grid references, hectareage details, farm map with a marked growing area and the seed type, THC content including confirmation of whether this is a European Union approved seed.

You must pay a fee with your application, new licences cost approximately £580 and licence renewals costing £326. Each license lasts a growing season and must be renewed before you can begin to grow for the next season. A Disclosure and Barring Service (DBS) check is also necessary to be eligible for a licence. The Home Office can restrict where your crop is grown i.e. not in the vicinity of schools.

8.2 Hempen: Case Study



Oxfordshire based Hemp Farm 'Hempen' were left shocked as the Home Office instructed them to destroy 40 acres of their crop in Summer 2019 besides having obtained a legal license. Hempen the not for profit co-operative obtained their licence in 2015 and began extracting cannabis oil solely for wellbeing purposes, selling via their e-commerce site.

The changes to the cultivation of a particular part of the plant resulted in a loss of at least £200,000. The company's overall projections for the next few years were estimated to reach £2.4 million, instead, they now import the product from Europe. They still haven't regained their license despite the Home Office approving Jersey Hemp a month later.

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Over half (61%) of CBD customers say they use the products for medicinal purposes, with pain relief the primary use (71%). Another 38% also say they use the products to treat anxiety and depression.