# THE HIVE



# THE HIVE (OVERVIEW)

A specialist science park dedicated to growing, processing, and converting Hemp. Comprised of the following:

1: The main processing centre where raw hemp is sorted and graded before it is sent to the various departments for specialist processing.

2: The energy hub, dedicated to developing hemp based photo-electric cells and hemp composites for use in high powered solar cells, and batteries. Hemp Bio-ethanol and other green fuels can also be produced here.

3: The manufacturing hub producing composite panels for the construction, aviation, and energy sectors.

4: The media centre promoting the parks activities, co-ordinating press events, and managing the website and interactions on social media platforms.

5: The retail centre managing the selling and distribution of our range of hemp based products.

6: The education centre teaching young people about the methods for processing and converting hemp into materials for the future.

The main focus of the science park will be on developing new uses for hemp. Having said that, we also recognise that hemp has many traditional uses. The science park will also be able to process hemp into oils for medicines, cremes for beauty products, as well as products for the home and office.



# THE HIVE (ETHOS)

The Hive business community will benefit greatly by having many diverse hemp based businesses in close proximity. The combined knowledge and expertise of each sector can bring substantive benefits to the whole.

Building a science park around Hemp makes perfect sense to us. We have identified 12 main commercial sectors, each sector has many opportunities for small business development. The one thing each of the businesses will have in common is that they will require the same raw material. It is our aim to provide each business with the volume and type of hemp that they require.

The science parks management team will take care of the cultivation and harvesting of hemp, as well as the allocation of raw materials to each business sector. This will allow the business owners to concentrate on their own product development, marketing, and sales.

The success of a beehive depends on all the bees, not just one. We aim to encourage cross pollination of ideas so that when a breakthrough is discovered, everyone in the park benefits from it. We are looking for symbiosis and harmony, and not necessarily individual commercial supremacy. The hive is the sum of all its parts. We encourage every business to contribute fully and share in the overall success of the park.



#### **HEMP BATTERY POWER**

A volts by amp comparison between Hemp and Lithium reveals that hemp outperforms Lithium by a factor of 8. It is only a matter of time before manufacturers have to shift to hemp carbon technology.

Hemp carbon is extracted from the woody inner lining of the plant stem. The stems are usually considered waste by those who grow the plant for the flowering buds. The plant stems can be saved and used to make carbon nanosheets for batteries and super capacitors.

Super capacitors offer a revolutionary new way of storing energy. The main advantage of supercapacitors is that they store energy in an electrical field. This means they can be fully charged in minutes, instead of hours. It also means they will not generate heat during the charge cycle. Super capacitors are able to discharge their full power instantly which makes them perfectly suited for the electric car market. Super capacitors can deliver extra power exactly when it is needed, and they can recover 'waste' energy under braking, something Lithium batteries cannot do.

Super capacitors have a virtually unlimited life, unlike Lithium batteries which have a relatively short working life. Hemp carbon nano sheets can be charged and discharged hundreds of thousands of times with no loss of charge capacity. The energy density of super capacitors is also far greater than Lithium which means a far greater charge can be stored in the same relative space.

Hemp has a higher energy density compared to Lithium. In a direct comparison Lithium can store up to 180Wh per kg. Hemp carbon is able to store up to 1000Wh per kg. This is the kind of competitive advantage that cannot be ignored.



## **HEMP BODY ARMOUR**

Kevlar (poly paraphenylene terephthalamide) is expensive to produce because of the difficulties arising from using concentrated sulphuric acid. The acid is needed to keep the water-insoluble polymer in solution during production.

Kevlar is used for body armour because of its ability to effectively dissipate kinetic energy. But guess what? Hemp carbon nano sheets are just as tough, just as light, and they can be produced cheaply and cleanly without the use of caustic acids.

An added advantage of Hemp carbon over Kevlar, is that hemp panels can be made to store energy. For example protective body shields can be produced that could hold enough charge to power a home for a day! Electrical devices, such as communication equipment, could be charged just by plugging them into the shield.

This concept changes the way we look at solid surfaces. For example, it would now be possible to make a ships hull function like a gigantic battery. The ship could be powdered by a clean electric motor that could travel around the world on just one charge. The possibilities for this kind of material are endless!

Hemp panels can be shaped and moulded just like steel, but, unlike steel, hemp will never rust. Henry Ford made the first hemp built, and hemp powered car in 1941. It is a shame that the oil industry crushed his vision, because time has proven that he was way ahead of his time.



#### **HEMP BIO-FUELS**

Hemp seed has an oil content of 30 to 35% of its seed weight and yields approximately 511 gallons of oil per acre. Traditional diesel fuel is often blended with bio-diesel at a ratio of 80% / 20%. Blends can range from 2% to 100% bio-diesel. Any diesel vehicle can run on bio-diesel without engine modifications.

Hemp can be used to make bio-ethanol and bio-diesel. It can also be used as a main fuel in a biomass power plant.

In 1983, Mercedes Benz produced a vehicle for demonstrating hemp as a fuel source. The 300TD station wagon has a turbocharged diesel engine that runs on 100 percent hemp oil. This production model proves that hemp is capable of ending our addiction to oil based petroleum. Hemp oil is not volatile like petroleum fuels and is non-toxic. There is less pollution and no risk of an oil spill. Environmentally and economically hemp makes far more sense than petroleum based products.

Hemp requires about 30 – 40 cm (12-15 in) water per growing season or equivalent rainfall to produce a crop, whereas corn requires around 56 cm (22 inches). It has been calculated that hemp can produce more than 800 litres of bio-diesel per hectare per year – a greater yield than crops such as soybean, sunflower, peanut or rapeseed. There is also the potential of making methanol, ethanol, bio-gas and solid fuels from the rest of the plant.



# HEMP BIO-DEGRADEABLE PLASTICS

Hemp grows prolifically, making it an extremely efficient crop for sustainable plastics known as 'bioplastics'. These are lightweight, biodegradable alternatives which can replace many petrochemical plastics (oil-based plastics).

Despite hemp plastic's ability to biodegrade easily, it is actually 5 times stiffer and 2.5 times stronger than traditional plastic. The more lasting it is, the less of the product needs to be produced resulting in energy saved. Hemp plastic is also heat resistant which makes it great for culinary use.

The bioplastics market in 2019 accounted for approximately 1.5 million metric tons of product, with an expected growth rate of 17.5 percent over the next decade. Much of this demand is for compostable bags, plastic bottles and food service disposables like cutlery and liquid beverage containers.

Ultimately, to have a successful hemp plastic industry, the hemp fiber industry must thrive. Today, there is a market for high-value hemp plastics like automotive composites, and the more the grain and cannabinoid markets grow, the cheaper the fibre will become.

The key to a successful bio-plastics industry is to grow more hemp. The greater the production of hemp, the cheaper the cost of the raw materials. Hemp can be grown on marginal lands, and requires no pesticides or fertilisers. hemp also has the added advantage in that it can help remediate contaminated soils.



#### **HEMP PAPER**

Hemp paper has actually been around for thousands of years. The Ancient Egyptians used hemp to create paper, and the first draft of the declaration of independence was written on hemp paper. It is thought that the first hemp paper was made in China in 200-150 BC

Hemp is more suitable for paper than wood pulp because of its higher cellulose and lower lignin content. Hemp paper is also much more eco-friendly and sustainable than tree paper.

Paper can be made from either the long bast fibre (hurd) or the short bast fibre (pulp) of the hemp plant. Hurd is preferred for strength, whereas pulp is simpler to make. Just one acre of hemp may be able to produce the same amount of paper as 4-10 acres of trees over a 20-year cycle. This is because hemp grows faster than trees.

Not only is hemp paper more sustainable, but it's also more durable. Unlike the paper we use now, it doesn't yellow over time. Hemp has the added advantage of having natural anti bacterial properties, this means that hemp toilet paper would be kinder to the skin than bleached wood pulp paper.

Paper waste and deforestation are a massive problem, hemp can be part of the solution.



# **HEMP BEAUTY & COSMETICS**

Hemp seed oil, added to skin care products, is rich in nutrients, containing antioxidants, proteins, carotenoids, phytosterols, phospholipids, and many minerals and a high proportion of essential fatty acids, with moisturizing, anti-aging, nourishing dry skin, dealing with skin infections. CBD oil is also a known anti-inflammatory agent.

Researchers believe that CBD's ability to act on the endocannabinoid system and other brain signaling systems may provide benefits for those with neurological disorders. One of the most studied uses for CBD is in treating neurological disorders like epilepsy and multiple sclerosis. Though research in this area is still relatively new, several studies have shown promising results.

Sativex, an oral spray consisting of CBD and THC, has been proven to be a safe and effective way to reduce muscle spasticity in people with multiple sclerosis. One study found that Sativex reduced spasms in 75% of 276 people with multiple sclerosis who were experiencing muscle spasticity that was resistant to medications

Another study gave 214 people with severe epilepsy 0.9–2.3 grams of CBD oil per pound (2–5 g/kg) of body weight. Their seizures reduced by a median of 36.5%. Another study found that CBD oil significantly reduced seizure activity in children with Dravet syndrome, a complex childhood epilepsy disorder, compared to a placebo\*.



#### **HEMP FABRICS**

Hemp uses half as much water as cotton, and requires no pesticide use during the growing cycle. Hemp can be used to make fibres that are equally as soft as cotton. These two factors alone should be enough reason for the world to switch to hemp fabrics, but there are many more commercial advantages of using hemp.

For example; hemp can be used to produce fabrics that are tougher and longer lasting than cotton garments and they will not lose their shape as easily. Hemp also has natural anti-microbial properties which means that fabrics will be less resistant to becoming a home for bacteria. Hemp breathes just like cotton so garments will keep the wearer cool in summer, and warm in the winter. Another significant advantage is that hemp absorbs coloured dyes deep into the fibre, (unlike oil based fibres). This means that garments made from hemp will retain their colour longer. even after multiple washes.

Hemp almost disappeared in Europe and Northern America in the 1930's. The reknewed interest in hemp fibres is well deserved. A primary aim of the science park is to educate young people and make them fully aware of the plants potential to transform every major sector of industry throughout the entire world.



#### HEMP HYGEINE

Most of the cotton that is commercially grown ends up being used to manufacture women's tampons. The problem with cotton is that it is being sprayed with Roundup. The active ingredient in Roundup (Glyphosate) is a known carcinogen. Residues of this toxic pesticide are finding their way into the female reproductive organs. Tampons are single use disposables. There is absolutely no justifiable reason why cotton should be grown for such a product.

Hemp has natural anti-microbial properties which will make it a healthier, and safer choice than cotton. Hemp tampons are biologically more compatible because hemp contains essential Cannabinoids. The active compounds found in hemp, are necessary for the proper functioning of the reproductive system. The active compounds in Hemp tampons will actually help to relieve stomach cramps, nausea, headaches and other common symptoms associated with a women's period. The fact that hemp does not require pesticides during the growing cycle will mean that the product is truly organic.

One of the more sinister applications of gene altering technology is sterilisation without consent. For example; Cotton could be genetically altered so that it would make women sterile without them even being aware how. This type of weapon already exists. In 2001, Monsanto and Du Pont bought a small biotech company called Epicyte which had created a gene that makes the male sperm sterile. The gene is grown in GMO corn. In the case of cotton, the tampon would become the bullet.

If we are going to take reproductive health seriously then we must prevent endocrine disrupting chemicals from getting inside the body. Hemp tampons are an easy way to clean up the toxic pesticide industry.



#### **HEMP FOODS**

Hemp seeds can be considered a super food. They provide one of the most complete surces of protein, all the essential amino acids, and three perfectly balanced Omega oils. The nutrition contianed in the seeds is present in optimum ratios, and in the most easily digestable form.

Butter, and oil are two basic ingredients necessary for most recipes. Hemp butter and hemp oil can be used as a direct substitute. Hemp seeds can be crushed and made into flour which can then be used to make breads and pastries. Hemp honey can also be incorporated into recipes. Hemp milk and cheese are two more basic foods which can be made from hemp. The fact that hemp does not require pesticides during the grow cycle, means everything made from hemp will be naturally organic.

Hemp oil contains 80% essential fatty acids comprising 50-70% Linolenic acid, 15-20% Alpha Linolenic acid 1-6% Gamma Linolenic acid. Roughly 35% of the seed content is oil.

Many of the cereals currently being grown for livestock feed, contain residues of the pesticide Roundup. The active ingredient in Roundup is Glyphosate which is a known carcinogen. Hemp does not require the use of any pesticides during the growing cycle and therefore it is a much healthier source of protein. Hemp's natural anti-bacterial properties help maintain the natural well being of all who consume it.



#### **HEMP HONEY**

There is evidence to suggest that ancient Egyptians knew of the special properties of honey, and the medicinal value of hemp. There is also evidence which suggests that they used bees to harvest hemp pollen and convert it into honey. What makes this even more remarkable is that honey is the only edible food that never rots. What better carrier is there for a medicine?.

Honey has proven medicinal value, yet so little is known about the symbiotic relationship between bees and the hemp plant. By monitoring and studying the activity of bees, we can learn a great deal about the relationship. This knowledge can lead us to a deeper understanding and appreciation of the potential of hemp honey to be a medicine of the future.

Early research into the existence of endocannabinoid receptors focused mainly on the brain and nerves. Scientists later discovered that the receptors are present throughout the body, including our skin, immune cells, bone, fat tissue, liver, pancreas, skeletal muscle, heart, blood vessels, kidney, and gastrointestinal tract. We now know that the endocannabinoid system is involved in a wide variety of processes, including pain, memory, mood, appetite, stress, sleep, metabolism, immune function, and reproductive function.

Endocannabinoids are arguably one of the most widespread and versatile signaling molecules known to man. Putting them inside a substance that never rots, is a stroke of pure genius.

# THE CHEMISTRY OF HONEY

![](_page_12_Figure_6.jpeg)

# HEMP THROUGHOUT HISTORY

Hemp is mentioned in many ancient writings including the bible. In Exodus, 30:23, God directed Moses to make a holy anointing oil composed of myrrh, sweet cinnamon, Kaneh-bosem, cassia, and olive oil. "And you shall make of these a sacred anointing oil blended as by the perfumer; it shall be a holy anointing oil."

What is fascinating about this, is that the Endocannabinoids in the hemp oil would have been received by the Endocannabinoid receptors in the skin. The oil would have had a beneficial effect, whenever it was applied. Daily devotion would have benefited people greatly as endocannabinoids are essential for the proper regulation of bodily functions.

In times past, a perfumer would have jealously guarded their secret recipes. These days, scientists can use various forms of spectrum analysis to reverse engineer blended oils to determine the exact 'recipe'. What the recipe for anointing oil reveals, is that the oil was not produced for 'show', it had a specific, and very beneficial purpose. The above recipe will still have the same positive effects if it was used today. We have not changed, we have only forgotten what our ancestors knew.

We were led to believe that progress means constantly coming up with new things, but what nature keeps revealing to us, is that there is nothing new under

![](_page_13_Picture_5.jpeg)

# THE FOURTH INDUSTRIAL REVOLUTION

According to the World Economic Forum we are now in an 'era' where passive energy takes precedence over explosive energy. What this means, is that every petrol and diesel engine will be phased out of existence by 2050. Electric motors will become the norm and so demand for batteries is going to go through the roof. We know that Hemp Carbon is a far better alternative to Lithium, it is also far cheaper to obtain than Lithium. So why isn't everyone already using Hemp Carbon?

To answer this question, we need to go back in time to when the oil industry first came into being. Back then, nobody knew much about crude oil and this gave the oil barons the upper hand. Hemp is a direct competitor to crude oil, and considerably cheaper to produce. The oil barons considered hemp a major threat to their business monopoly and used their political influence in Washington to slowly legislating hemp out of existence. The cultivation of hemp eventually became prohibited throughout most of the world.

Intelligence was clearly not the driving force behind innovation, it was simple greed that drove the oil industry forward. The oil industry monopoly outlawed hemp to protect it's own interests and so hemp disappeared, as did the knowledge of how to grow and process Hemp.

That was then, this is now.

![](_page_14_Picture_5.jpeg)

# HEMP AND THE ENVIRONMENT

The oil industry, and the Lithium mining industry are both very destructive forces in the world. Switching to Hemp will resolve many of the environmental problems that these industries have created.

Mining companies accept that they have to excavate thousands of tons of substrate, in order to obtain a relatively small amount of raw material. The running costs of the mining operation are passed onto the consumer through the cost of the end product. Batteries made from hemp carbon will perform much better than Lithium, and they will be a fraction of the price of Lithium batteries because no mining is involved.

Hemp carbon can be made cheaply and easily. Does it really make sense to cause so much destruction unnecessarily when all we have to do is throw some seeds on the ground? If we switch from Lithium to Hemp the natural environment will automatically improve over time.

The open cast Lithium mine pictured below is fairly typical. Nature will eventually reclaim these mines, but if we know the whole process is entirely unnecessary, why continue doing it?

![](_page_15_Picture_5.jpeg)

# **INVESTING IN CO-OPERATIVE FARMING**

We offer a range of services to help people who wish to invest in the Hemp industry here in Spain. The Hive management team is based in the historic province of Granada, Spain.

If you want to start cultivating hemp yourself, we can help you find a suitable plot of land and help you obtain the necessary permisions to grow. This process can take several months to complete and requires a substantial capital investment.

Many people like the idea of growing hemp but don't want to own land, equipment, or pay the fees for the license to grow. They see the profit potential of Hemp but don't want to become tied to a plantation.

In such cases we recommend investors buy a share in a managed grow. The advantage of a managed grow is that you don't need to buy any land, machinery, or obtain any permits. Investors can buy into the grow by the square metre. This means investors can see a return on their investment within weeks, not years. There is very little risk involved, and no barriers to investing.

Managed grows offer a low risk, long term regular income, for a small initial investment. Managed grow facilities run 365 days a year and harvest 3-4 yields per annum (depending on the species grown). Minimum investment is 5sq mtrs. Minimum contract term 2 years.

A managed grow is an attractive investment proposition. Decide how many sq mtrs you want and we take care of the rest. You receive income from the proceeds of the sale. Every step is managed for you so you don't have to do a thing. This type of investment offers a very attractive R.O.I. and also a quick return on investment.

![](_page_16_Picture_7.jpeg)

#### HEMP GROW PODS

Recent developments in LED lighting allow us to create secure, self contained, Canna~Can grow pods, that are powered by solar panels discretely installed on the roof.

The grow pods incorporate a Hydroponic/Aeroponic grow system so water requirement is minimal. Automated lighting and watering system make the pods easy to manage. The pods can be fitted out ready to grow food crops, or medicines like hemp.

There are several lighting options you can choose from and various ways of configuring the pods to suit your individual growing requirements. Air circulation and extraction equipment is built in so the pods can also be used to dry and 'cure' the crop when the grow is complete. Hemp only takes 3 months to mature, whiuch means it is possible to get 3-4 harvests per year out of each container.

A single pod can house up to 40 full size plants (maximum capacity depends on species type). You can increase the amount of plants that the pod is able to accommodate by using methods like FIM or Lollipop pruning. Pruning produces shorter, more compact plants, which can be grown on vertical racks. It then becomes possible to accommodate 200+ plants, in each pod.

hydroponic/aeroponic system, use far less water than traditional growing methods. This means the pods can be dropped even in remote locations that do not have running water, or electricity, and still perform as intended.

![](_page_17_Picture_6.jpeg)

#### SUMMARY

Hemp is a sustainable resource that grows readily and without the need of commercial pesticides. Hemp has over 50,000 commercial uses, making it one of the most versatile plants in existence.

A beehive is an example of a perfect, self contained, self organising, and self sufficient community. The bees work to serve the world around them by pollenating fruit trees, and other edible food crops. Without bees, we would have no food; but when was the last time you heard of bees going on strike for better working conditions, or more pay?

A beehive is one of the cleanest places on Earth. Inside a beehive is where bees produce a medicine so perfect, it never rots. Compare this to the world we made which is rotten to the core.

Bee colonies can be destroyed relatively easily; but the fragility of nature is part of its exquisite beauty. The vulnerability is genuine, but it is not a weakness. The perfection of the natural system reveals the ignorance of those who seek to destroy it. It is ignorance that is the weakness, not the perceived fragility of the natural system.

Hemp can single handedly breathe life back into abandoned villages and rural communities all over the world. Bees love hemp; so we already have nature's vote, do we have yours too?.

![](_page_18_Picture_6.jpeg)

#### **INSIDE THE HIVE MIND**

The Hive project was developed by Taun Richards. You can find out more about the author by visiting the following links:

Taun's Butterfly conservation program www.bfwings.com

Taun's Book website www.butterflywingsthebook.co.uk

Taun on social media www.facebook.com/taunrichards www.facebook.com/gaprogram www.instagram.com/lepidoptrist

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https://www.youtube.com/channel/UCE8Oxj6WoP9H2z5xgnoXITg

You can also contact Taun directly by email: nedici@btconnect.com

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