



WEBINAR: INDUSTRIAL HEMP AND
NETTLES IN TEXTILE



LA

Webinar: Industrial hemp and Nettles in Textile

Datum: 2022-11-10

Tid: 10:00–12:00

Plats: Zoom

On the 10th of November at 10:00-12:00 the University of Borås and Science Park Borås invites you to a webinar about industrial hemp and nettles, and processes related to those bast fibres.

Speakers:

- Cultivation of Industrial hemp – Clara Norell, Svensk Hampaindustri
- Processing industrial hemp into textile – May Kahoush, The Swedish School of Textiles
- Bio-based residual streams with potential in the technical textile industry – Nawar Kadi, The Swedish School of Textiles
- Textile from Nettles – is that possible? Anette Johansson, Sällskapet Nellorna
- Nettles for smartness – conducting research – Nils-Krister Persson, The Swedish School of Textiles/Smart Textiles

Moderator: Linda Nydén, Science Park Borås

Zoom-link: <https://hb-se.zoom.us/j/67074482407>

The webinar is a part of the research project "[Bio-based residual streams with potential in the technical textile industry](#)" at the University of Borås. Participants from and outside of University of Borås are welcome to join, no registration necessary.

For more information, please contact Linda Nydén: linda.nyden@hb.se



Samsung Quad Camera
Fotat med Galaxy A52 5G



HÖGSKOLAN
I BORÅS



CULTIVATION OF INDUSTRIAL HEMP

CLARA NORELL

SHI - Svensk Hampaindustri AB
Construction Engineer BSE, Founder & CEO

clara@svenskhampaindustri.se

www.svenskhampaindustri.se

Instagram: [@shi_svenskhampaindustri/](https://www.instagram.com/shi_svenskhampaindustri/)

MEANINGS OF CULTURE IN THE AREA

FLEXIBLE FOR NEW CULTURE
 MEETING NEW PEOPLE
 Food
 Joy
 RIGHT OF EXPRESSION
 Cafe culture
 Urban lifestyle
 Leisure time
 ALTERNATIVES
 Diversity
 PRODUCTIVE CULTURE
 SPACE
 PAST
 FIGHTING
 CLIMATE (Lovey dark nights)
 Streets Outside
 HIGH vs LOW
 VALUES
 MEMORIES
 CREATING HERITAGE
 FUN
 NICE ENVIRONMENT CULTURAL DIVERSITY → BIODIVERSITY
 GROUP WORK
 DIALOGUE
 LEARNING PLACES
 CITY DESIGN
 LANDLORDS STAKEHOLDERS
 COLLECTIVE
 HAVING A GOOD TIME
 SUSTAINABLE ARTISTIC INCOME
 MAKING CLEAR VISION
 MARKET ING
 MAKING OWNERS SATISFIED
 PARTICIPATING WITH PEOPLE
 GOING...

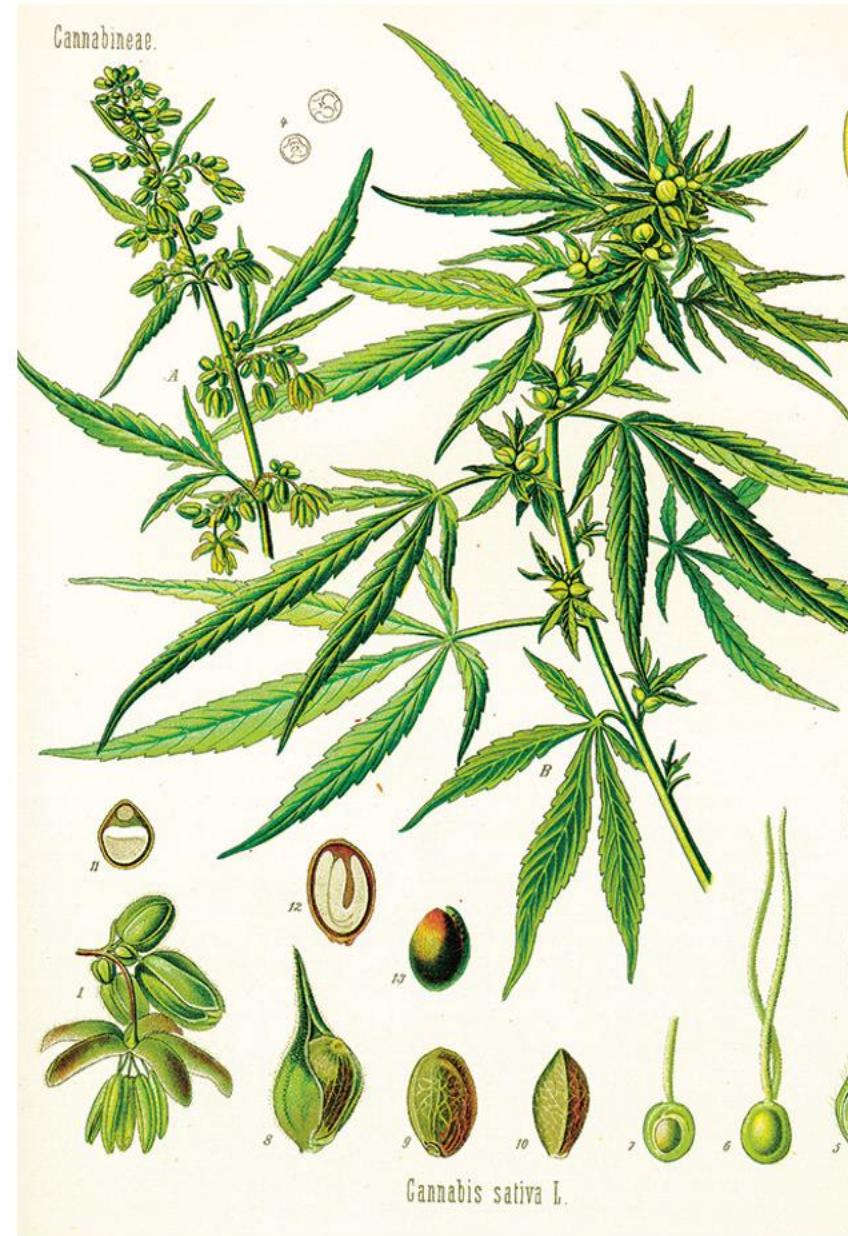
THE PROCESS OF DEVELOPMENT

Passion
 Meetings
 Management (Cultural policy)
 Long-term plan
 CREATING THE NARRATIVE
 Short-term plan
 Artists
 Budget
 Malmo Municipality
 Freedom of expression
 Culture
 Inhabitants
 Planning
 Platform
 Integrity
 city design
 Social cultural Entrepreneur
 Landlords Stakeholders
 Research
 DIALOGUE
 LISTENING
 CREATORS
 RECORDING/ARCHIVING
 OPINION LEADERS
 EVALUATION
 GIVING PEOPLE THE VOICE
 SHARING THE VISION
 COLLABORATION
 ACTION
 DESIGN THINKING
 NEEDS
 VISION
 CITY DESIGN
 COLLECTIVE
 HAVING A GOOD TIME
 SUSTAINABLE ARTISTIC INCOME
 MAKING CLEAR VISION
 MARKET ING
 MAKING OWNERS SATISFIED
 PARTICIPATING WITH PEOPLE
 GOING...

Making Clear Vision
 MARKET ING
 MAKING OWNERS SATISFIED
 PARTICIPATING WITH PEOPLE
 GOING...
 STARTING POINT
 PHASE
 HOW TO GET BUDGET
 ENSURING COMMUNITY
 WHAT ELSE AFTER?
 LAND VALUE
 FAIR TRADE
 HOLISTIC STRATEGY
 SMALL CHANGES
 ACCEPT MISTAKES
 KEEPING EXISTING VALUE
 ADAPTING VALUE
 CONNECTING WITH THE OUTSIDE
 FROM PEOPLE
 PASS OVER TO THE NEW...

To know
where you
are going –
you must
know your
History

Why hemp?





The Evolution of *Cannabis* Definitions

Mid-1700s

Households across the globe cultivate European *Cannabis*, often in small plots near their homes, for fiber. Seeds are used to replant the following year, as well as for food, animal feed, medicine and oil.

1753

Carl von Linné (otherwise known as Carl Linnaeus) defines *Cannabis sativa*, meaning cultivated *Cannabis*.

1785

After East Indian *Cannabis* arrives to Europe, French botanist **Jean-Baptiste Lamarck** names the Indian varieties *Cannabis indica*, meaning “hemp from India.” That definition draws the initial taxonomic boundary between hemp and drug *Cannabis*.

1800s

Active ingredients derived from *C. indica* become increasingly important for their medicinal and psychoactive effects.

Late 1900s

European definition of “hemp” takes on a more commercial orientation to describe *Cannabis* cultivars grown to produce stalks, fibers or seeds that are characterized by low THC content.

2018

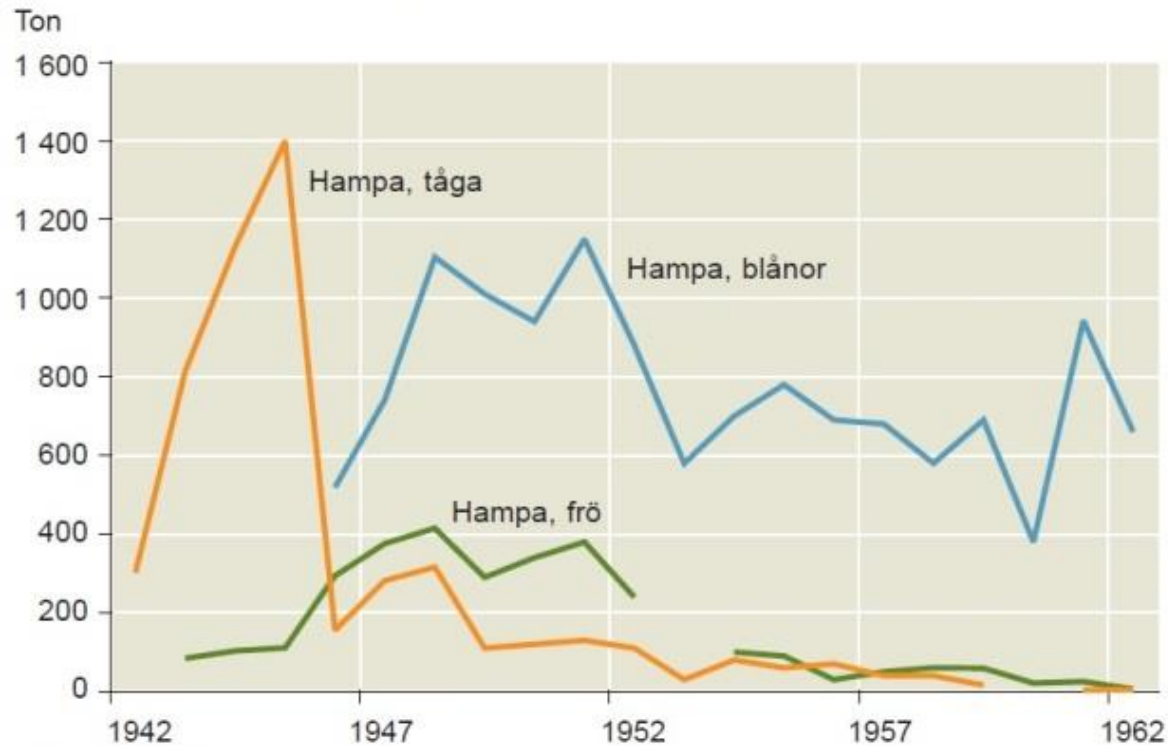
The 2018 Farm Bill defines “hemp” as any *Cannabis* containing less than 0.3% THC, regardless of its end use.

HEMP CULTIVATION IN SWEDEN 1942 – 1962

1966 END OF ECONOMICAL SUPPORT TO FARMERS

BANNED 1995 - 2003

Figur 5 Z
Totalskörd av hampa, riket 1942–1962



Källa: Tabell 5.2.

<https://jordbruketisiffror.wordpress.com/2013/08/05/odlingen-av-hampa-i-sverige/>

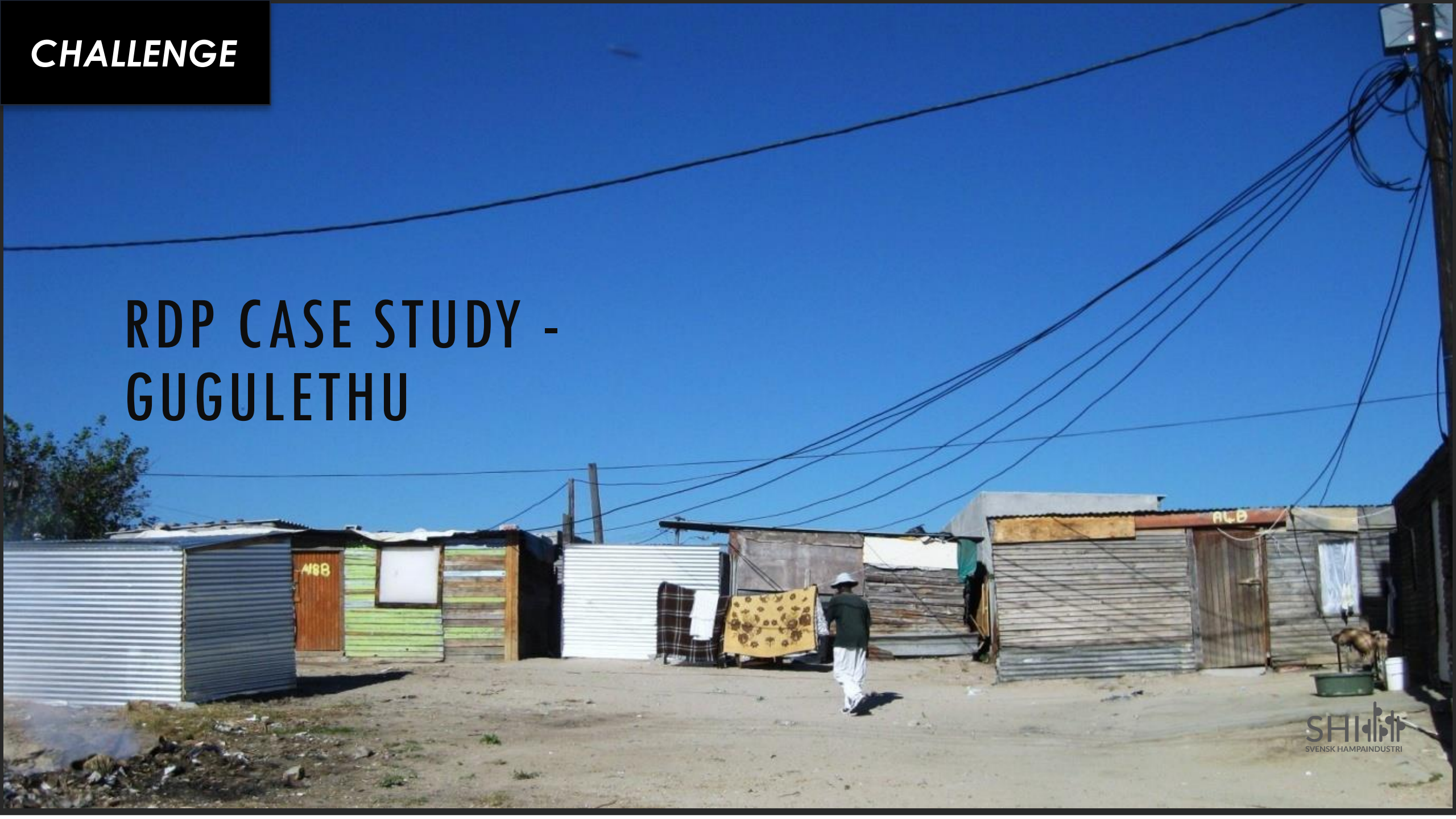


First hand experience of living without access to clean water, toilet inside, sick house syndrome



CHALLENGE

RDP CASE STUDY - GUGULETHU



CHALLENGE

Climate changes



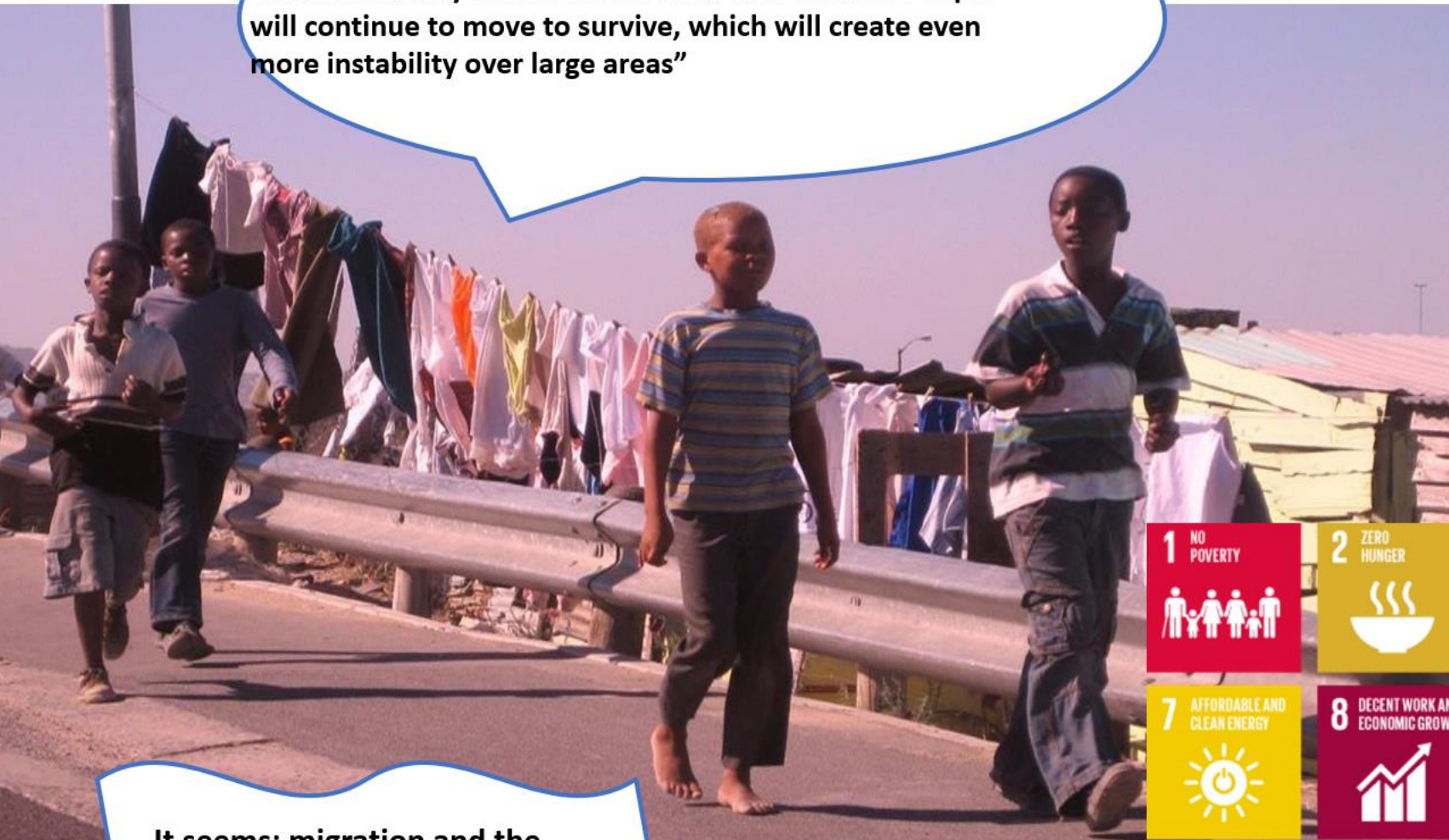
8 people killed in the Western Cape Province,
due to unexpected climate changes
May – June 2017.



“Mother of all Storms” – June 2017 the worst storm in three decades
Displacing thousands already coping with the region's worst
drought in a century.

CHALLENGE

“Mamela! Many will be forced from their homes! People will continue to move to survive, which will create even more instability over large areas”



- Land & Agriculture
- Basic free service:
 - housing
 - water
 - energy
 - sewage

It seems: migration and the predicted refugee situation linked to bad housing & Water Crisis – is wider than we can imagine.

1 NO POVERTY	2 ZERO HUNGER	3 GOOD HEALTH AND WELL-BEING	4 QUALITY EDUCATION	5 GENDER EQUALITY	6 CLEAN WATER AND SANITATION
7 AFFORDABLE AND CLEAN ENERGY	8 DECENT WORK AND ECONOMIC GROWTH	9 INDUSTRY, INNOVATION AND INFRASTRUCTURE	10 REDUCED INEQUALITIES	11 SUSTAINABLE CITIES AND COMMUNITIES	12 RESPONSIBLE CONSUMPTION AND PRODUCTION
13 CLIMATE ACTION	14 LIFE BELOW WATER	15 LIFE ON LAND	16 PEACE, JUSTICE AND STRONG INSTITUTIONS	17 PARTNERSHIPS FOR THE GOALS	SUSTAINABLE DEVELOPMENT GOALS



Hemp fabric fibre is so easy to grow, so soft and attractive and so loaded with excellent natural properties that it seems almost custom-designed to provide our planet with an incredibly versatile, sustainable material.

Hemp fabric provides all the softness of a natural textile but with a strength that is an amazing 3 times higher than cotton – making it uniquely hard-wearing and long-lasting. 100% hemp fabric has an attractive natural finish and can also be mixed with cotton or silk to produce a wide variety of different weights and types of fabric.



Tony Budden, Hemporium



Hemp House, Nordhooek, Cape Town

- Hempcrete is sustainable
- Hempcrete is mouse- and termite resistant
- Hempcrete is fire proof
- Hempcrete creates jobs
- Hempcrete requires low skilled labour – where language & writing skills are a non-requirement.
- Hemp stores CO2
- Hempcrete is CO2-negative
- Hempcrete regulates temperature and humidity



HEMP-SOLUTION





hampa event på orient



Svensk hampaelit träffades i Smedstorp

Den svenska hampaeliten har i två dagar samlats på Orient i Smedstorp för konferens. Syftet har varit att sprida kunskap om den mångsidiga växtens möjligheter vidare, men också att flytta fram industrihampans positioner på nationell mark.



HAMPA-EVENT PÅ ORIENT TIMELAPSE

72 visningar · för 2 år sedan



HAMPA-EVENT PÅ ORIENT. Xpress Yourself i stort samarbete med Hou...



Anders Hall, projektledare

82 visningar · för 2 år sedan

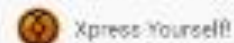


Anders Hall, projektledare



Thomas Jacobsson, Lantbruk

100 visningar · för 2 år sedan



Thomas Jacobsson, Lantbruk



Christian Wilke, Arkitekt

74 visningar · för 2 år sedan



Training Certificate

The Nordic Hemp Building School in collaboration with École Nationale Du Chanvre hereby certifies

Clara Cecilia Norell

has successfully completed:

« Introduction and implementation of building with hempcrete »

On the 24th, 25th & 26th of August 2020, including 24 hours of training

presented by Remy Chorda & Max Scholtes





SH 
SVENSK HAMPAINDUSTRY



SH 
SVENSK HAMPAINDUSTRY

SHI — SVENSK HAMPAINDUSTRIB AB

▶ **STARTUP-company for a sustainable, circular, bio-based, plant-based, CO2-neutral future. Cultivating, harvesting, refining, promoting & selling EU-certified industrial hemp B2B towards food industry. Cultivated free of pesticides. Minimal irrigation.**

▶ **Residual waste streams become R&D for bio-based dreams.**

▶ **Business model founded on the tech/processing machines integrated under one roof.**

▶ **Intention is to be one of the leading players in the growing hemp market.**

Transparent, professional, traceable, plan(e)t-lovers

▶ **We want to contribute to reintroduce an agricultural crop and industrial plant, for a sustainable agriculture and increased yield for Swedish agriculture while contributing different industries with positive social, economical and environmental benefits.**

▶ **Globally, we act as consultants in the USA, Germany**

▶ **South Africa: Board Member – Cheeba Academy, online & practical course, hemp-tours**

SHI FINANCED BY

**FOODTECH
INNOVATION
NETWORK**





Board Member



Work Group Member: Fibre & textile

SHI part of these Member Based Networks



Fibre & Textile: 2021 focus



- +15 Fibre/textile experts from Universities and Research Centers;
- +50 textile and fibre members and 3 Working Group meetings;
- Hemp supply chain paper;
- Hemp fibre standard paper;
- Contacts with press;
- Starting promotion of hemp fibre in textile industry;
- Starting a hemp catalogue and communication material;
- A link with Fashion world, Textile associations and the EU Com.

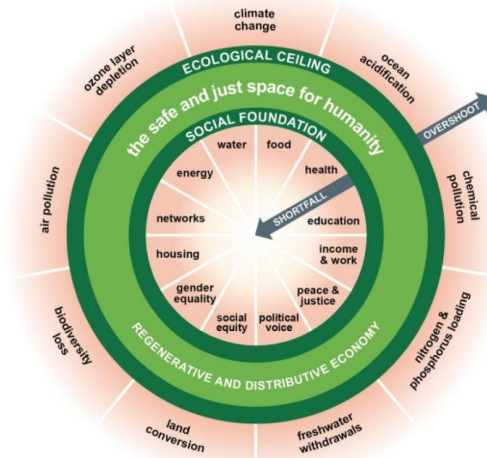


SWEDISH CULTIVATION OF EU-CERTIFIED INDUSTRIAL HEMP SEEDS FOR SWEDEN'S FOOD INDUSTRY

RESIDUAL STREAMS FOR BIO-BASED DREAMS

We are positioned to support the market in a way that no one else operates in Sweden today.

As an enabler, a "to-go-to company" for those farms as well as market segments that work to change to a sustainable plant-based, bio-based, fossil-free and circular industry.



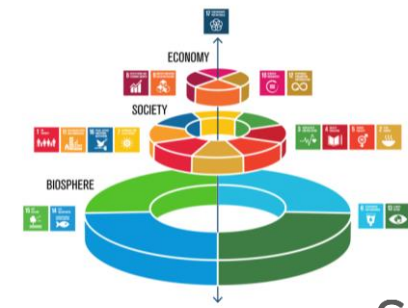
15 EKOSYSTEM OCH BIOLOGISK MÅNGFALD



9 INDUSTRY, INNOVATION AND INFRASTRUCTURE

Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation

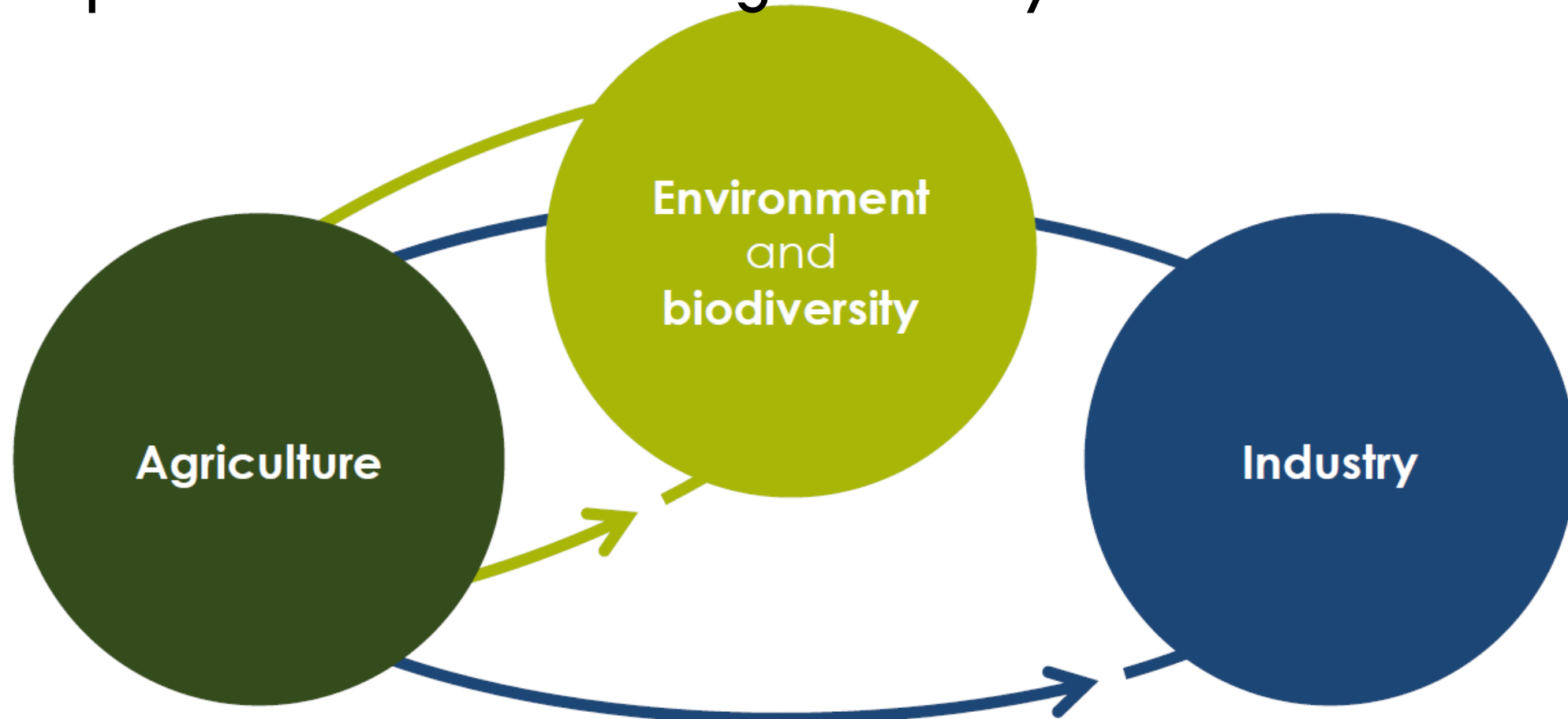
Hemp for Food

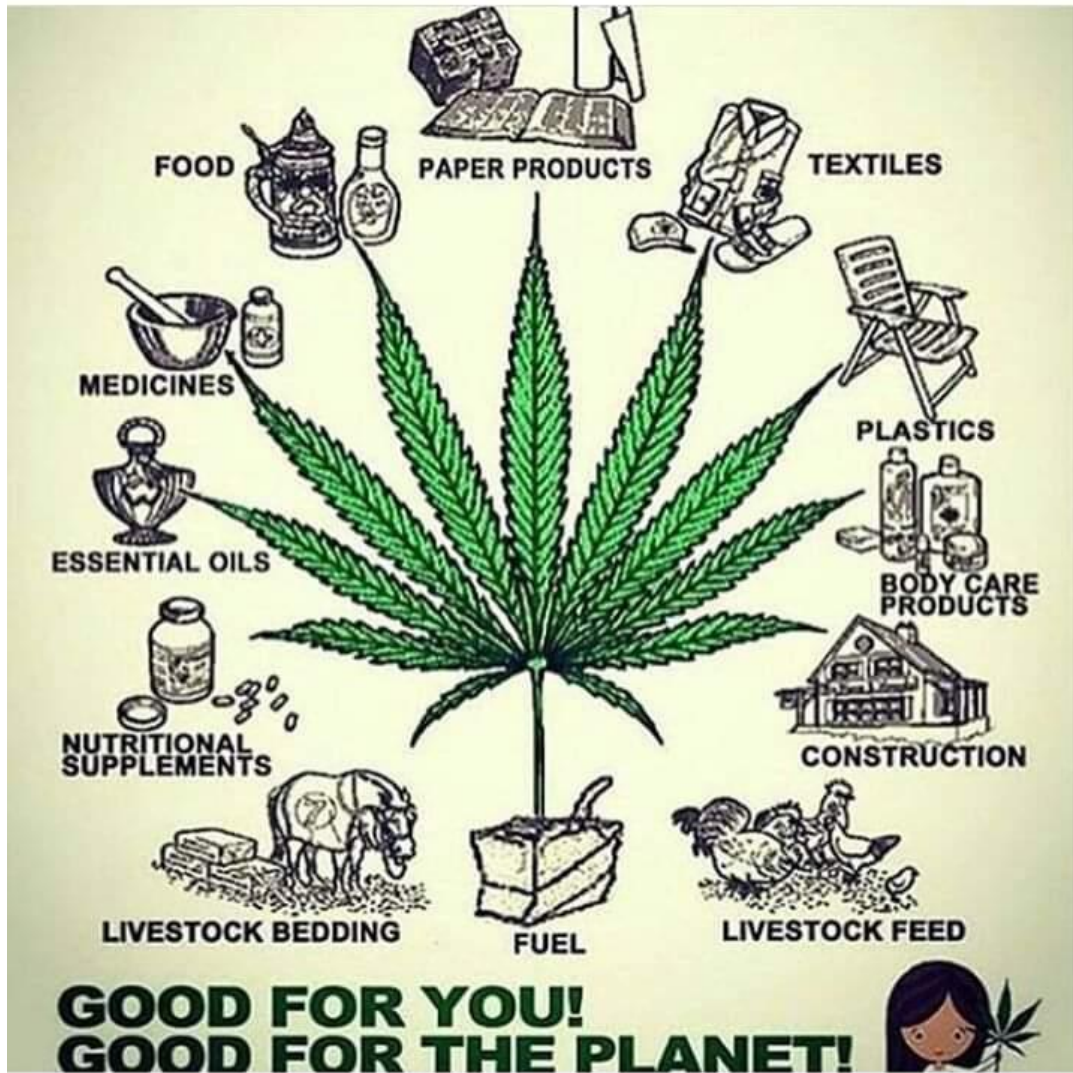


SHI
SVENSK HAMPAINDUSTRIT

RECONCILE ECONOMY & ENVIRONMENT

Hemp – for a life Affirming economy





Bio-based residual streams with potential in the technical textile industry

Reference number	2021-03719
Coordinator	Högskolan i Borås
Funding from Vinnova	SEK 4 000 000
Project duration	November 2021 - October 2024
Status	Ongoing
Venture	Circular and biobased economy
Call	Increased resource efficiency for a circular industry

Purpose and goal

In this project, we want at an early stage to combine the technical textile industry's need for new climate-smart and resource-efficient materials with applied research on how to make better use of residual flows from the food industry. Finola is an industrial hemp variety that is mainly used to get seeds and oil for food. After seed harvesting, hemp stalks are left in the field or discarded. The need for sustainable circular bio-based materials in technical textiles will increase as society becomes more fossil-independent, where residues from the hemp industry can play an important role

Expected results and effects

Effects and results from this project are expected to strengthen Swedish innovation and contribute to global climate benefits, knowledge and methods for sustainably extracting textile fibers from hemp's waste residues. The obtained fibers will be used to manufacture textile nonwoven structures that will be used in various technical applications. The project will also help to increase skills throughout the supply chain from farmers to textile manufacturers, which will strengthen the ability to move towards a circular economy.

Planned approach and implementation

The project will be organized in five work packages, in addition to project management and communication the project will optimize and evaluate the extraction of textile fibers and the manufacture of textile structures. The project will also assess possible value-added applications according to the needs of the market and the industrial parties. The results will be communicated in relevant context such as conferences, publications and similar.



Battered by Floods and Trapped in Debt, Pakistani Farmers Struggle to Survive

The recent flooding has plunged small farmers in sharecropping arrangements further into debt with their landlords — a cycle that has worsened as extreme weather events become increasingly common.

Trying to salvage what is left from a cotton field after devastating floods in Nawabshah, Pakistan.

By [Christina Goldbaum](#) and [Zia ur-Rehman](#) Photographs by [Kiana Hayeri](#)

Oct. 1, 2022

Hemp vs. Cotton Clothing

HEMP

Requires virtually
NO PESTICIDES or
chemical fertilizers
to grow



Accounts for 25%
of **ALL GLOBAL**
agricultural
chemicals used

Hemp produces
TWICE AS MUCH
FABRIC per acre as
cotton does



Cotton requires
TWICE AS MUCH
LAND to grow as
hemp does

Hemp needs 2,300L
of water to produce
1kg of fibers



Cotton needs
10,000L of water
to produce
1kg of fibers

Hemp **CLEANS THE**
SOIL AROUND IT,
making it a great
rotation crop



Water from cotton
farms enters the
ecosystem and
chemicals
HARM THE SOIL

Hemp fabric is
THREE TIMES
MORE DURABLE
than cotton

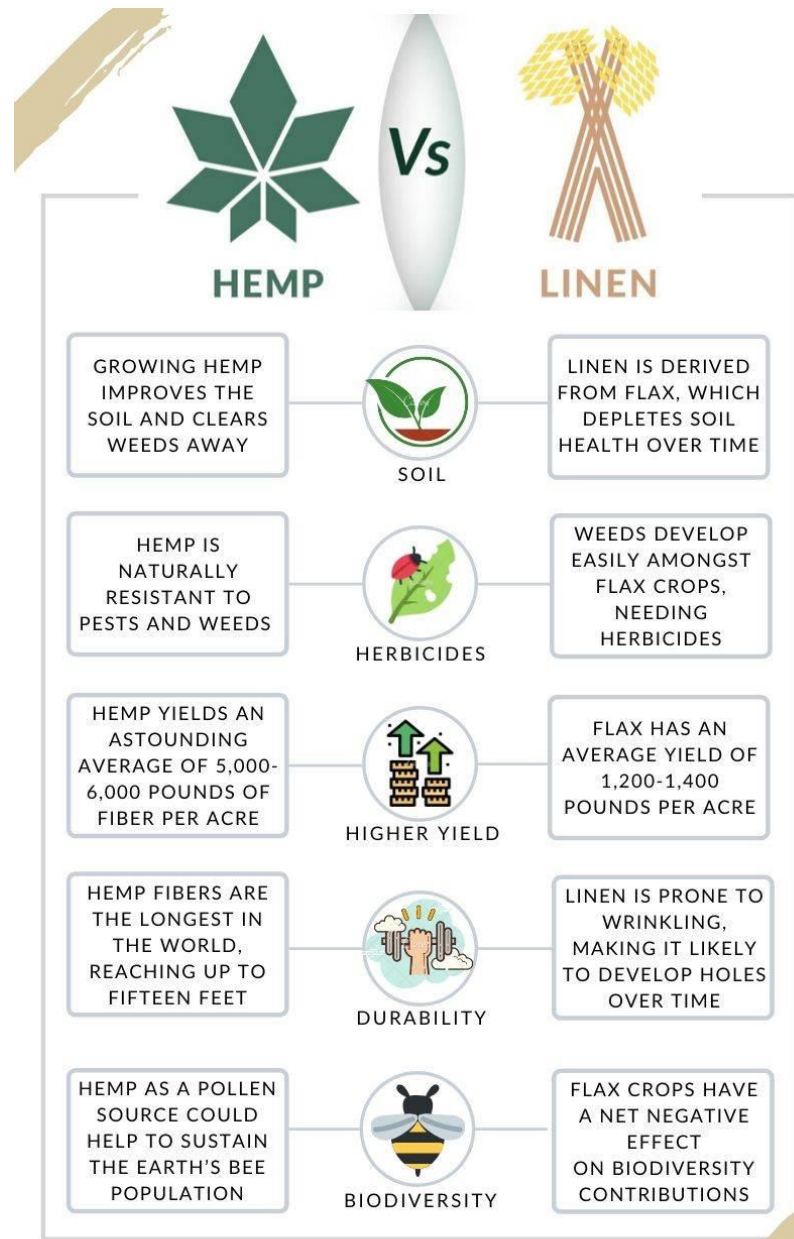


Cotton fabric is
THREE TIMES
LESS DURABLE
than hemp

8 Billion Trees
.com

COTTON





SOURCES
 WWW.RODALEINSTITUTE.ORG
 WWW.FLAXCOUNCIL.CA
 WWW.HORT.PURDUE.EDU
 WWW.NEWFRONTIERDATA.COM
 WWW.INTERNATIONALHEMPASSOCIATION.ORG
 WWW.CFDA.COM



[HTTPS://WAMAUNDERWEAR.COM/BLOGS/NEWS/HEMP-VS-LINEN](https://wamaunderwear.com/blogs/news/hemp-vs-linen)



HÖGSKOLAN
I BORÅS

CLIMATE

Hållbarhet, CO2–

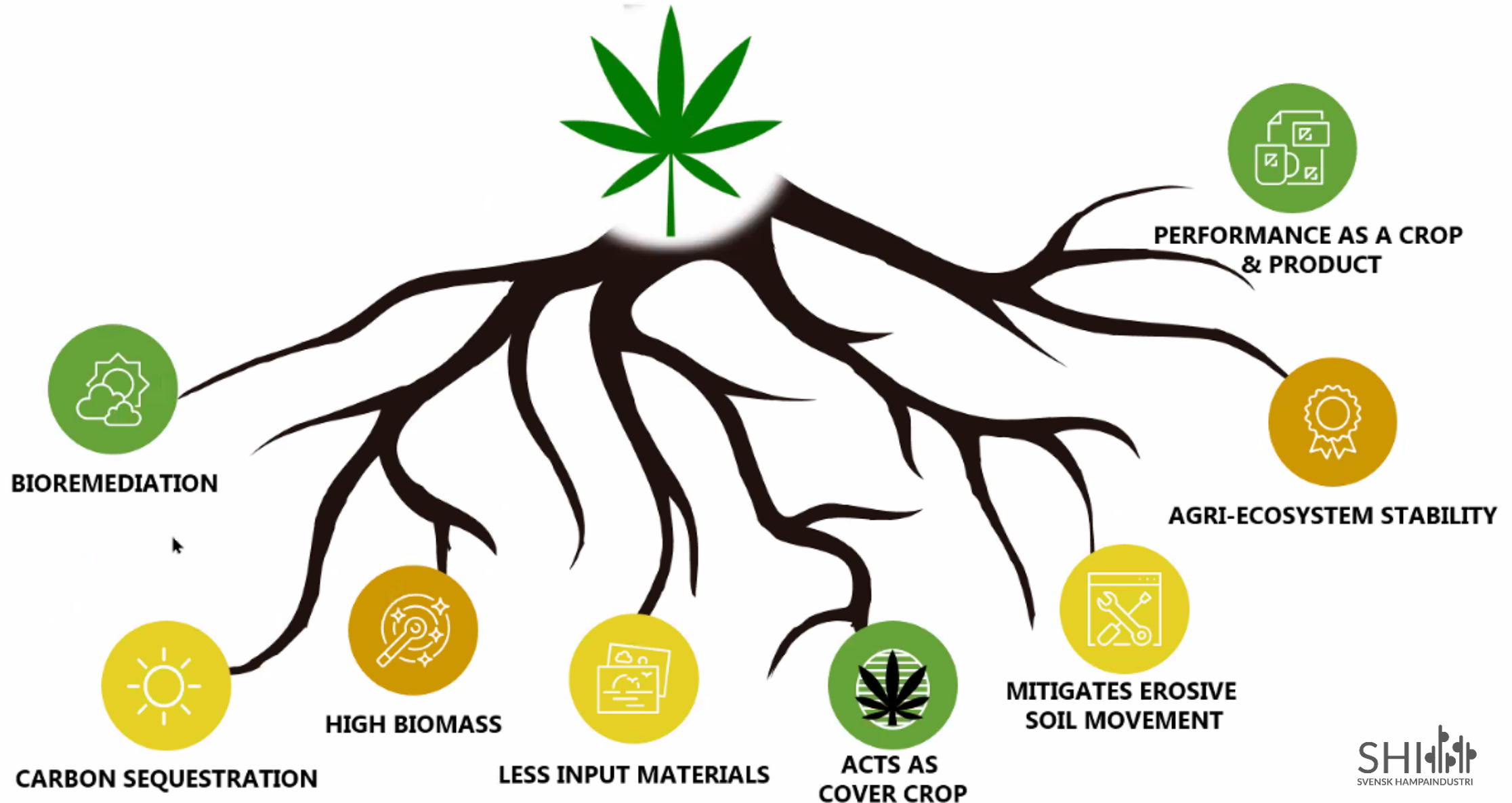
Up to 15 metric tonnes absorbed per hectar

INDUSTRIAL
HEMP AS A TOOL
TO COMBAT THE
EFFECTS OF
CLIMATE
CHANGE



AGRICULTURAL PERSPECTIVE

HEMP AS A CROP



THE RIGHT CROP

- -A rotational crop capable of most of the EU's regions and soils
- - ZERO% pesticides are added regardless of conventional or organic cultivation
- little or no addition of water, PPS
- - a source of pollen during periods of lack of flora
- - reduces water loss and soil erosion
- - can be used for phytoremediation
- - increases biological diversity
- beneficial effects on succeeding crops





FINOLA

Oilseed Hemp – “Food-Hemp”

Finish genetics

EU certified industrial hemp

High in CBD & CBG

< 0,2% THC

1.80 meter tall

Diameter 1 cm

Strong fiber

Short fiber –

Shives for building industry, animal bedding

Pole root, Long strong roots

No irrigation

No pesticides

No weeds

No need for certain machines for harvest = regular ag-tech/combine works great



VARIETIES OF HEMP BASED ON PURPOSE

	Hemp for Fiber	Hemp for Grain/Seed	Hemp for CBD
Planting time	Early May to early June	Mid-May to mid-June	Mid-June. Greenhouse-only systems may plant year-round.
Harvest time	Around the time of pollination, generally 45-70 days after planting; mid-July to early August.	At maturity, generally 100-120 days after planting; mid-September to mid-October.	Female plants grown to near maturity, mid-September to mid-October in fields; greenhouse harvests vary.
Harvest method	Mower (sickle or disc mower) and a hay baler (round or large square)	Regular combine	Plants are cut by hand and removed from the field.
Post-harvest handling	Left to field dry to 15% moisture, then baled.	Clean before storage in a grain bin, where forced air dries the crop.	After drying, flowers and some leaf materials are removed from stalks, packaged and sent to processor for oil extraction.
Other comments	From 10 to 18 feet tall (3.0m - 5,5m)	5-7 feet tall (1.5m - 2.0m)	6 to 12 feet tall. (1.8m – 3.6m) Only the female plants are used

Hemp Cultivation				
Soil	sand	organic	låg lerhalt mest sand	
irrigation	ja	Watered two times		
standardbevattning	20 - 25 ml	Not more for sand	Sand can not sustain water for long	

Fertilizer					
gödsel					
	35 metric tonnes flytgödsel pig maneur	Clarified to use for organic farming			
Nitrogen	100 kg Nitrogen totally	Per ha			
	60 kilo nitrogen from fertilizer				
	30 -40 kilo kväve from the pre-plant				











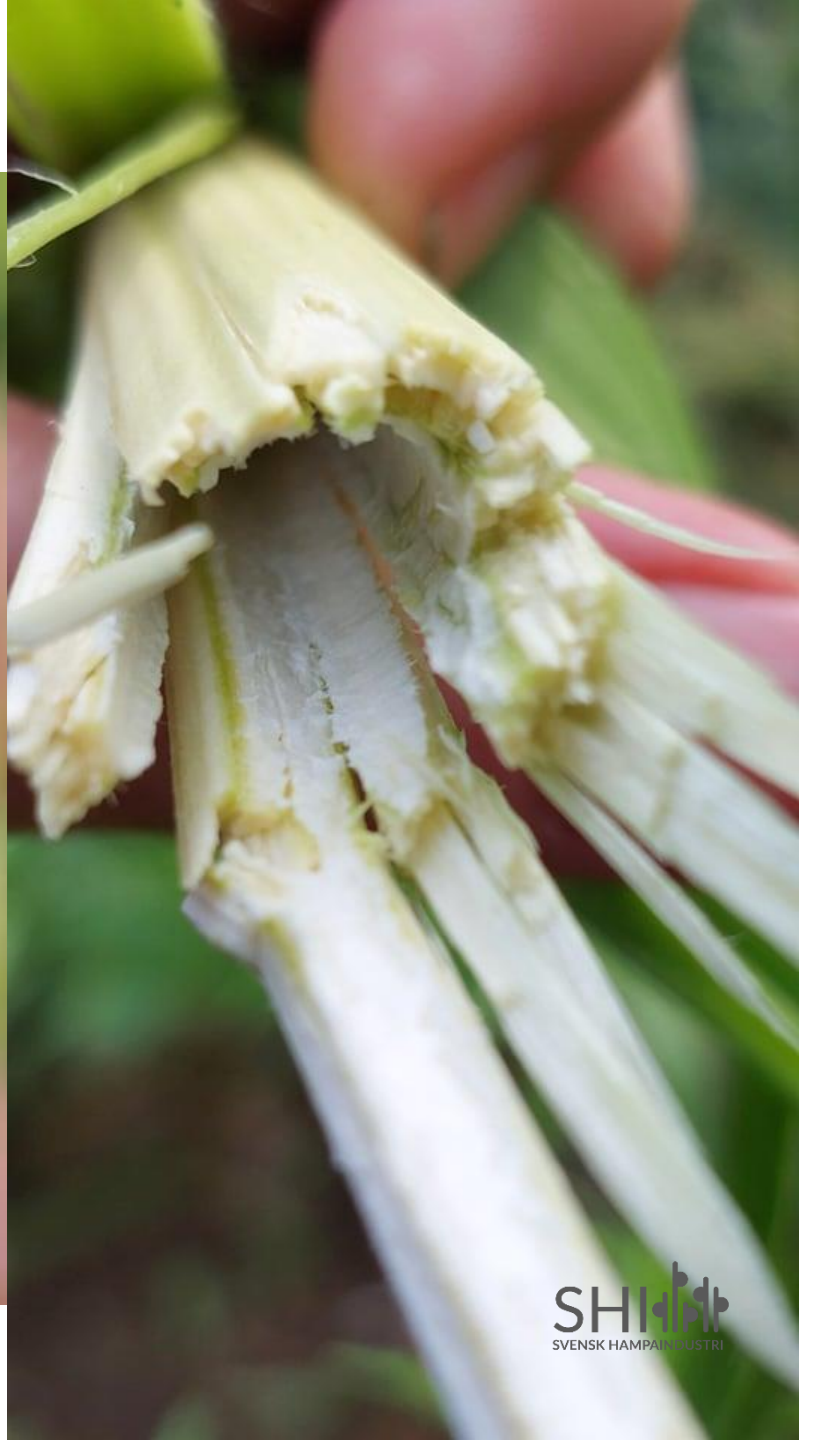
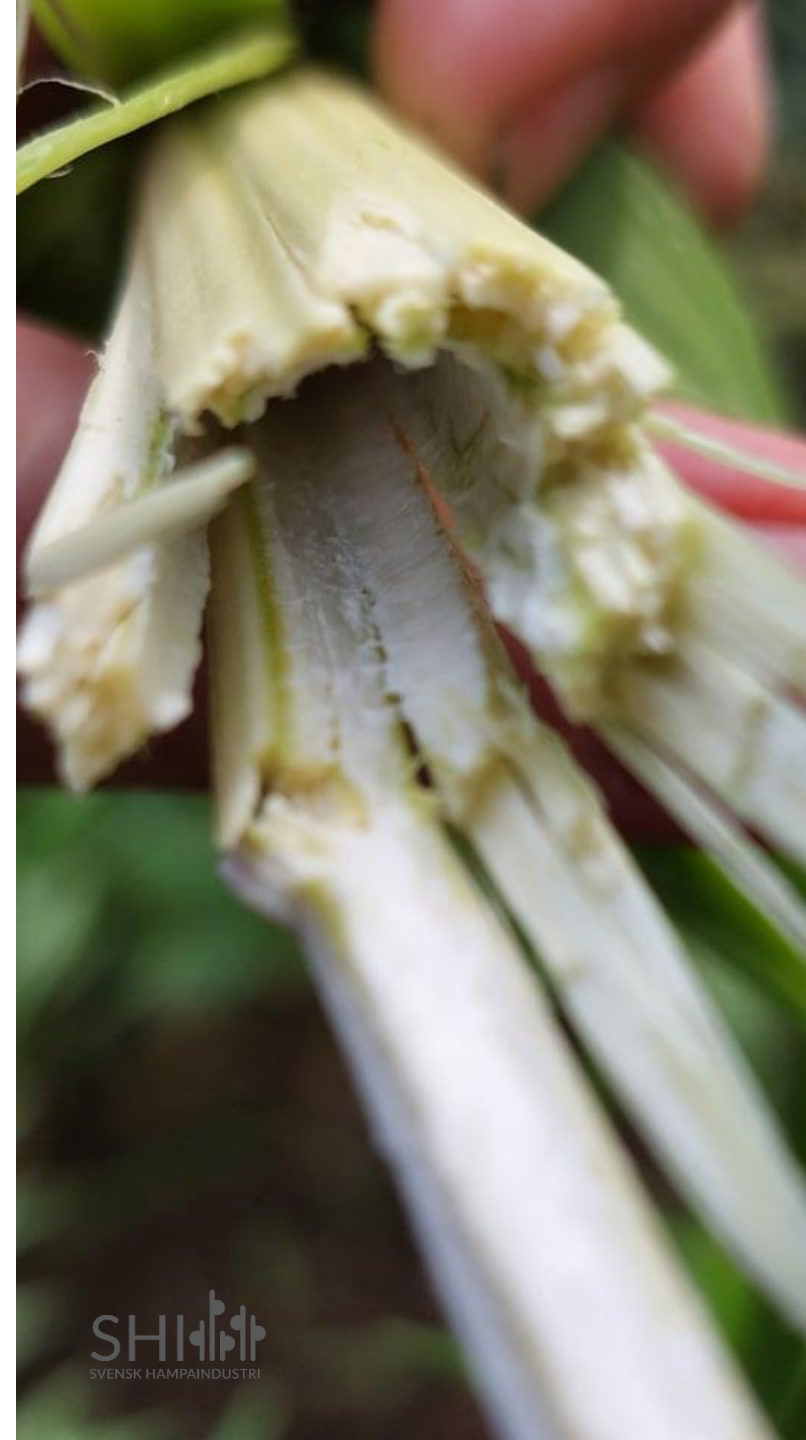
LOCALLY CULTIVATED- & PRODUCED
NON-TOXIC PLANT-BASED PROTEIN

SVENSK HAMPAINDUSTRIB AB





**TALLER
FIBRE HEMP
3 – 4 METER
VERY STRONG
ROOT SYSTEM
ALMOST
IMPOSSIBLE TO
PULL UP BY
HAND**



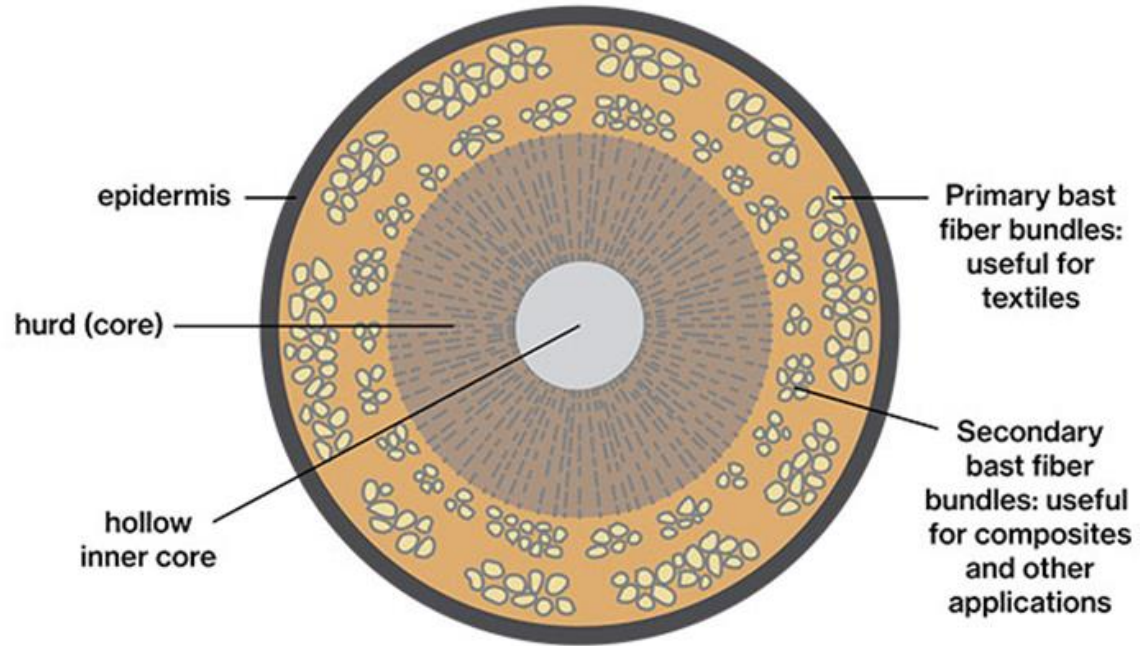


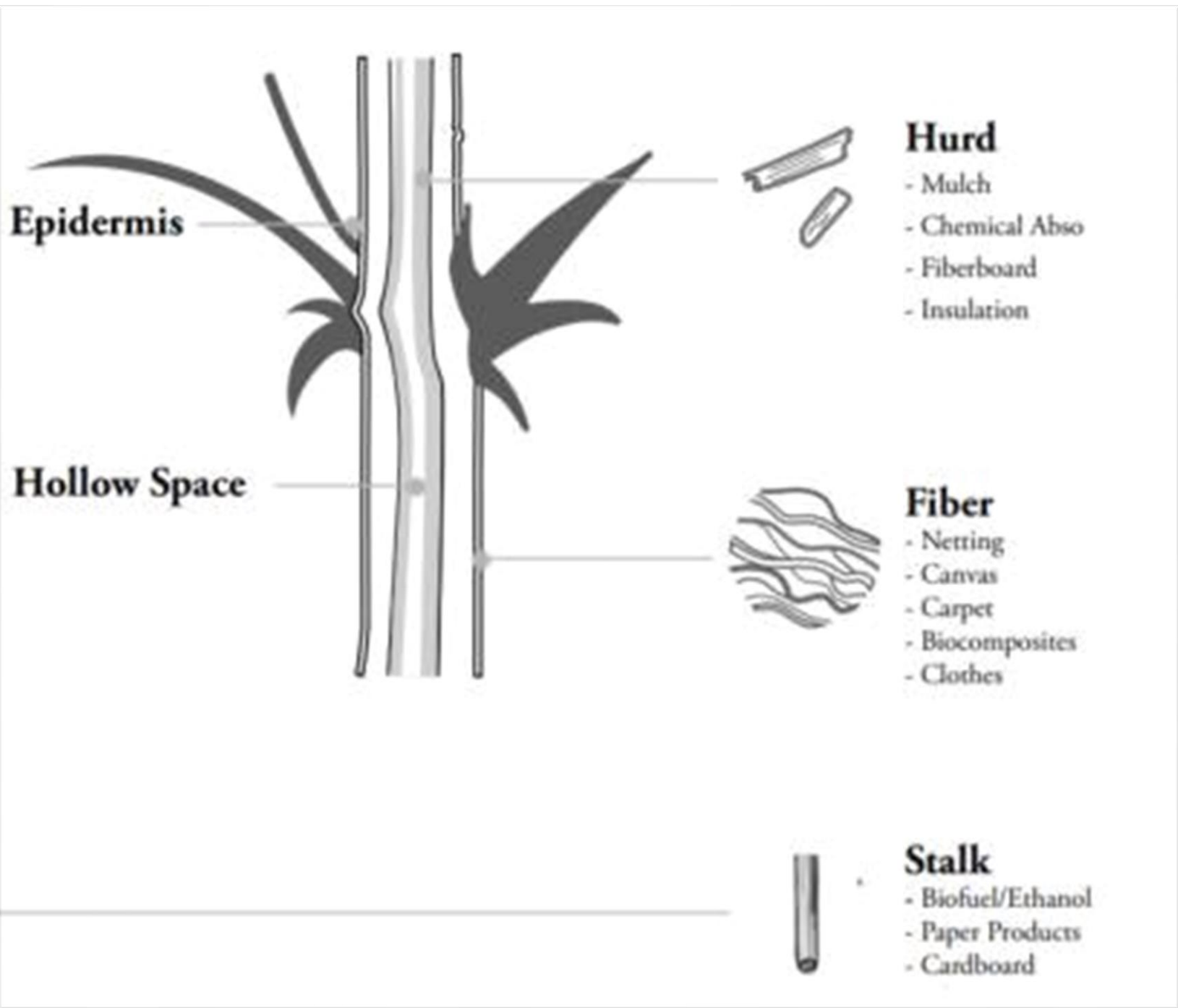




Hemp Fiber

An inside look at a hemp stalk









SWEDISH HEMP FIELD HEMP TEST FIELD – HUSHÅLLNINGSSÄLLSKAPET SKÅNE

TEST FIELD OF 4 DIFFERENT STRAINS



HEMP SHIPMENT TEMPLATE

**BIO-BASED
RESIDUAL
STREAMS WITH
POTENTIAL IN THE
TECHNICAL TEXTILE
INDUSTRY -
PROJECT NO.
155156**

**FINOLA &
EARLINA 8FC,
SHI & HUSHÅLLNINGSSÄLLSKAPET**



FINOLA FIELD

Planted incorrect

- not enough
seed/ha

Too much weed



FINOLA – TOO MUCH WEED – NOT CORRECTLY PLANTED



FINOLA

LEFT: MATURE FOR SEED HARVEST

RIGHT: MATURE FOR FLOWER HARVEST



FINOLA



Samsung Quad Camera
Fotat med Galaxy A52 5G



**FINOLA —
RESIDUAL STEM
AFTER SEED
HARVEST.
HEIGHT CA 30—50
CM**

**IN BACKGROUND:
EARLINA 8FC
SANTHICA 27**



EARLINA 8FC

Earlina 8 FC is a variety exclusively bred for seed production in geographical situations in Northern Europe. Its very short growing cycle is perfectly adapted to late-spring and early-autumn weather conditions.

GROWING IN SPIRAL LIKE STRUCTURES





EARLINA 8FC,
RED STEM
IRREGULAR HEIGHT
STRONG SCENT OF LEMON



GREAT COLLABORATION WITH HUSHÅLLNINGSSÄLLSKAPET I SKÅNE, SANDBY GÅRD

We cut the stem with
a knife beam in the
front of the tractor

Model Gaspardo
230.

Then collected by
hand and dried on
seed dryer which
blowed hot air on
stems ca 6 days



HEMP SHIPMENT TEMPLATE

**BIO-BASED
RESIDUAL
STREAMS WITH
POTENTIAL IN THE
TECHNICAL TEXTILE
INDUSTRY -
PROJECT NO.
155156**

**FINOLA
SHI & BISKOPHAGENS ODLINGAR**









**FINOLA SEED —
TOO MUCH GREEN SEEDS.
TOO EARLY HARVEST**

**RESIDUAL WASTE
STREAMS AFTER
SEED HARVEST**



**MANUALLY
COLLECTED STEMS
AFTER 7 DAYS OF
RAIN.
MUDDY WET FIELD.**



**AIR DRIED
STEMS
2 X 12 HOURS**







Samsung Quad Camera
Fotat med Galaxy A52 5G



Samsung Quad Camera
Fotat med Galaxy A52 5G

COLLABORATION WITH OTHER SWEDISH HEMP FARMERS

I Hampalövs sortiment finns därför både teer, buljong, snacks, smör, smoothies, knäckebröd och proteinbars. Bland annat. Man kan använda skalade eller oskalade hampافرön. Av de oskalade blir det t ex smör, de skalade används i müsli, smoothies eller på gröten.

Liga gör också mjölksyrade grönsaker som säljs i Reko-ringar i länet tillsammans med sortimentet av hampaprodukter.



Liga Appelgren i hampafältet.

FINOLA



FINOLA



FINOLA



Hållbara Hampainnovationer - Från svinn till vinn



Diarienummer	2021-03570
Koordinator	Materia Technologies AB
Bidrag från Vinnova	2 995 766 kronor
Projektets löptid	november 2021 - oktober 2023
Status	Pågående

Utlysning [Framtidens mat](#)

Ansökningsomgång [Framtidens goda och hållbara vardagsmat - Inno svensk förädling av växtbaserade råvaror](#)

Syfte och mål

Många agrikulturella restströmmar innehåller högvärdigt protein som idag inte utnyttjas till sin fulla potential. En sådan restström är hampfrökaka som erhålls vid produktion av hampafröolja. Projektets syfte är att tillvarata och uppgradera hampfrökaka genom att med olika extraktionsmetoder få ut, rena och karaktärisera proteinerna på ett kostnadseffektivt sätt samtidigt som förutsättningarna för fiberfasen undersöks. Målsättningen är att använda proteinerna i nya innovativa, hållbara och lokalproducerade livsmedelsprodukter med fokus på kött- och mejerianaloger.

Förväntade effekter och resultat

Genom ett ökat utnyttjande av hampfrökaka minskas produktionssvinnets samtidigt som det öppnar upp för nya närproducerade proteinråvaror med bra kvalitet, vilket efterfrågas från dagens livsmedelsproducenter. Detta genererar i sin tur nya innovativa produkter med mindre klimatpåverkan och ett hållbarare resursutnyttjande. En ökad efterfrågan på hampaprotein gynnar även jordbruket, då hampa har positiva effekter på jordmånen med hög kolinlagring och lågt vattenbehov samtidigt som den kan odlas även längre upp i Sverige. Projektet kan även generera nya affärsmöjligheter.

Planerat upplägg och genomförande

Projektet är uppdelat i olika arbetspaket som bygger på varandra. Inom de olika arbetspaketen kommer olika hampafraktioner, extraktionsmetoder och behandlingar av proteinsedimentet att

Hållbara Hampainnovationer

- Från svinn till vinn

Hampa kan användas inom fler olika industrier och traditionellt har stammen används inom material och textilindustrin för tillverkning av till exempel hamparep, textilier och isoleringsmaterial, där hampfröna då blir en restprodukt.

Hampfrö och dess presskaka innehåller:

- Kostfiber, och nyttiga fettsyror vilket ger bra Omega 3 och Omega 6 balans i oljan.
- Högt proteininnehåll >40% (dubbelt så högt som i kött)
- Mycket bra proteinkvalité, så kallad aminosyraprofil



Hampafält



Torkad hampaplanta

Restström



Hampfrön

Restström



Skal från hampfrön



Skalade hampfrön

Restström



Hampfröolja

Restström



Presskaka av oskalade hampfrön

Presskaka av skalade hampfrön

→



Hampburgare



Hampaglass

Hampproteinsediment



Malen presskaka av oskalade hampfrön



Grillat Hampakött



Friterat Hampakött

→ Matprodukter



Hampaflis



Hampakalk



Hampfiber

Medverkande partners



Finansierat av
VINNOVA
Sveriges innovationsmyndighet





Samsung Quad Camera
Fotat med Galaxy A52 5G







INDUSTRIAL HEMP AS GREEN BUILDING/CONSTRUCTION MATERIAL

Different products hempcrete & insulation & applications

Certification of materials & products

Viability in terms of economy, environment & people.

The raw material



short fiber

(for cottonisation
& non woven)



long fiber



shivs

(for viscose)

EXPECTATIONS

**PRODUCT
LAUNCH**



HEMP IS THE ANSWER TO CREATE A SUSTAINABLE WORLD –

- CIRCULAR ECONOMY
- INDUSTRIAL SYMBIOSIS
- CLIMATE NEUTRAL
- LEAVE NO ONE BEHIND
- IMPACT INVESTING
- **AGENDA 2030**



LAGAR OCH REGLER – VAD GÄLLER



Press release

3 December 2020

The cannabis sector sees a Christmas wish come true and celebrates two milestones in one week

Brussels – The European Industrial Hemp Association (EIHA) received yesterday a letter from the Health services of the European Commission stating that CBD can be qualified as food. Moments before, the UN recognised the medical value of cannabis and accepted WHO recommendation to reschedule it.

In light of the recent Court judgement C-663/18, **the Commission has reviewed its preliminary conclusion on cannabidiol, stating that it should not be considered as a drug** within the meaning of the United Nations Single Convention on Narcotic Drugs of 1961. This breakthrough comes at the same time as the **United Nations' Commission on Narcotic Drugs (CND) votes to accept the World Health Organisation's recommendation to remove cannabis from Schedule IV** of the 1961 Convention, which was reserved for substances with "particularly dangerous properties" and little or no therapeutic value.

"A truly historic moment for mankind: The United Nations, based on WHO recommendations, recognises the medical value of cannabis and removes it from Schedule IV of the 1961 Convention. Finally, the medicinal usefulness of cannabis is officially acknowledged" Says Mr Daniel Kruse, EIHA President.

"After this historic vote, it is worth highlighting that industrial hemp and non-medical CBD still remain out of the scope of the Single Convention. That is why, the second decision of this week is even more important for our industry: in light of the comments received inter alia from EIHA and of the recent European Court of Justice ruling, the European commission concludes that CBD should not be considered as drug and can be qualified as food. As the President of EIHA and as a pioneer of the hemp industry for 26 years, I truly thank the UN and our EU commission for these absolutely great Christmas presents!"



Regeringskansliet

Press release

2 December 2021

The new Common Agricultural Policy has been adopted and the maximum THC level on the field has been restored to 0,3 %

Sök på regeringen.se

Sveriges regering ▾

Regeringens politik i Sverige & EU ▾

Dokument & publikationer ▾

Departementsserien och promemorior från [Socialdepartementet](#)

Tydligare reglering av hampa

Ds 2021:34

Publicerad 01 november 2021

Syftet med förslaget i denna promemoria är att förhindra att cannabis och varor som innehåller tetrahydrocannabinol (THC) når konsumentledet samtidigt som odling av hampa som jordbruksprodukt ska vara möjlig.

[jordbruksverket.se/stod/lantbruk-skogsbruk-och-tradgard/jordbruksmark/gardsstod-och-stodratter/gardsstod/odla-hampa](#)

Odla hampa

[Skriv ut](#)

Du som vill odla hampa måste odla en godkänd sort och söka gårdsstöd för odlingen för att inte bryta mot narkotikalagstiftningen.

Du måste odla en godkänd sort och söka gårdsstöd

För att få odla hampa i Sverige måste du odla industrihampa. För att odlingen ska klassas som industrihampa måste du odla en godkänd sort och du måste skicka in en ansökan om gårdsstöd för odlingen. All odling av hampa som du inte söker stöd för betraktas som narkotika-produktion.

Godkända hampasorter 2021

EU bestämmer vilka hampasorter som är godkända för odling. I mars publicerade EU listan över godkända sorter 2021. Du måste odla en godkänd sort för att kunna få gårdsstöd. För alla de godkända sorterna är halten tetrahydrocannabinol (THC) högst 0,20 procent.

[Godkända hampasorter 2021](#)

Så söker du gårdsstöd





EUROPE, NEWS, POLICY, REGULATORY

Proposed rules in Sweden draw sharp criticism from hemp association

SIHA also criticized a rule that would require individual growers to plant a minimum of four hectares, a restriction that would disincentivize small-scale local producers, and hinder research and development projects often carried out on small plots, the association said.

Key recommendations

In other proposed rules changes to the Swedish regulatory framework for hemp, SIHA recommended:

- Hemp be treated like other agricultural crops in the handling, preparation and marketing of all plant parts, eliminating all other restrictions if the cultivation has taken place in accordance with general rules for agricultural crops.
- Products containing CBD and other cannabinoids which are to be sold as food or dietary supplements should be allowed as long as the marketing conforms to Consumer Agency, Food Agency and Pharmaceutical Agency rules for nutrition and health claims.
- Hemp harvested by registered growers from certified seed should be legal whether the cultivation takes place on land with agricultural subsidy entitlements or not.
- Certificates of conformity on importation should be available for all parts of the hemp plant including roots, stems, flowering tops and seeds.
- Requirements should be established for origin labeling and traceability of imported raw hemp and finished hemp products so that the consumer can make informed choices.
- Domestic hemp varieties developed by the Swedish Seed Association during the 1940s and 50s and which have been in storage at the Nordic Genetic Resources Center since 2003, should be researched for their potential to produce native varieties that are suitable for growing in Sweden's northern climate.

Hemp barely registers in Swedish agriculture. Modern-era records that date to 2004 show 150 hectares were under hemp that year. By 2007, hemp fields had grown to 829 hectares, but then started to decline. Recent years have seen total annual fields at less than 200 hectares, with most hemp farms being small plots.



Alfredo Pascual • 2nd

International Analyst at Marijuana Business Daily, specializing in E...

19h • Edited •

✓ Following

BREAKING: The United Nations decided seconds ago to remove [#cannabis](#) from Schedule IV of the 1961 Single Convention!!! 🐝

All other five [#WHO](#) recommendations were rejected. Particularly the CBD recommendation had only 6 votes in favor (needed 27 to pass). Please don't interpret this as an anti-CBD vote. The recommendation had many issues, as explained in this and in previous articles.

[#CND63](#)

via [Marijuana Business Daily](#) w/ Martin Jelsma and Kenzi Riboulet-Zemouli



United Nations approves WHO recommendation to reschedule cannabis in historic vote

[mjbizdaily.com](#) • 4 min read



SHIM

Large quantities, fast methods needed for hempcrete to meet promise in housing

Suddenly hemp fibre is in high demand as hempcrete use jumps

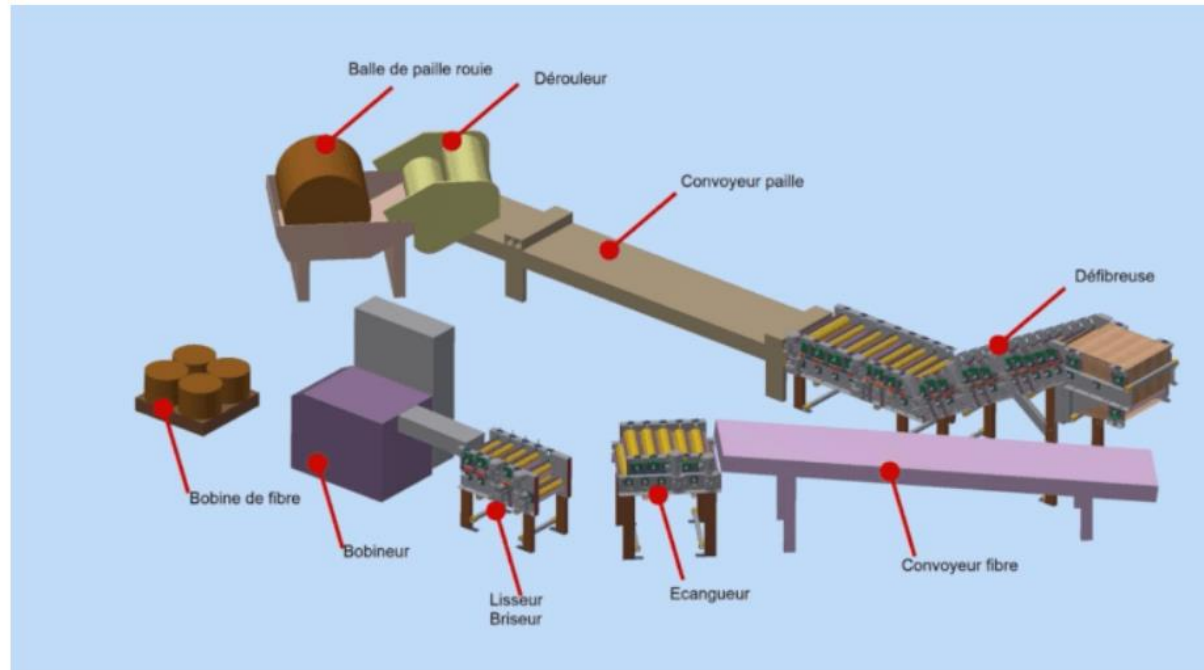
U.S. builders are using hempcrete more frequently due to its insulating properties and moisture tolerance

By Gord Leathers

Published: October 12, 2022

Reading Time: 3 minutes

Crops, News



POSTED BY: HEMPTODAY® OCTOBER 3, 2022

Hempcrete is made of the shives/wooden core – the byproduct when producing fibre.



Home / Business / Trade Data / News

Global hemp clothing market projected to reach US \$ 23.02 billion by 2031

by Apparel Resources News-Desk | 27-September-2022 | 2 mins read



Image Courtesy: www.greenmatters.com

Expected to grow at a CAGR of 27.1 per cent from 2022 to 2031, the global hemp clothing market, which was US \$ 2.29 billion in 2021, is projected to reach US \$ 23.02 billion by 2031.

September 21, 2022

Hempcrete Approved for US Residential Building Codes



Hempcrete homes, like this one in California, will soon be easier to permit and build after the ICC approved hempcrete for inclusion in the International Building Codes. Photo by Lillian Clarke



U.S. Hemp Roundtable Advances Agenda With Congressional Leaders



Benzinga Brings Big Energy to Chicago Cannabis Conference



Hemp Scores 2 Grants in USDA Climate Smart Commodities Awards



HEMP BUSINESS

National Hemp Association Educates on Industrial Hemp at United Nations



By Lets Talk Hemp

Published on October 4, 2022

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By Geoff Whaling

Get the hemp industry's top newsletter delivered straight to your inbox every Wednesday. 20,000 strong!

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Listen to the hemp industry's loudest podcast. Produced in conjunction with Loudest Show On Earth Productions. Nothing shall be louder than the truth.

Apple Podcast, Google Podcast, Spotify icons

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6 OCTOBER 2022

≡ CNN politics The Biden Presidency Facts First 2022 Midterms

Biden pardons all federal offenses of simple marijuana possession in first major steps toward decriminalization

By Kevin Liptak, CNN
Updated 5:39 PM EDT, Thu October 6, 2022



Statement from President Biden on Marijuana Reform

As I often said during my campaign for President, no one should be in jail just for using or possessing marijuana. Sending people to prison for possessing marijuana has upended too many lives and incarcerated people for conduct that many states no longer prohibit. Criminal records for marijuana possession have also imposed needless barriers to employment, housing, and educational opportunities. And while white and Black and brown people use marijuana at similar rates, Black and brown people have been arrested, prosecuted, and convicted at disproportionate rates.

Today, I am announcing three steps that I am taking to end this failed approach.

First, I am announcing a pardon of all prior Federal offenses of simple possession of marijuana. I have directed the Attorney General to develop an administrative process for the issuance of certificates of pardon to eligible individuals. There are thousands of people who have prior Federal convictions for marijuana possession, who may be denied employment, housing, or educational opportunities as a result. My action will help relieve the collateral consequences arising from these convictions.

Second, I am urging all Governors to do the same with regard to state offenses. Just as no one should be in a Federal prison solely due to the possession of marijuana, no one should be in a local jail or state prison for that reason, either.

Third, I am asking the Secretary of Health and Human Services and the Attorney General to initiate the administrative process to review expeditiously how marijuana is scheduled under federal law. Federal law currently classifies marijuana in Schedule I of the Controlled Substances Act, the classification meant for the most dangerous substances. This is the same schedule as for heroin and LSD, and even higher than the classification of fentanyl and methamphetamine – the drugs that are driving our overdose epidemic.

26 OCTOBER 2022

We do not engage in the political dialogue around Cannabis Sativa, the recreational/medicinal plant.

However:

These kinds of dialogues/change of laws will decrease the stigma around hemp – the industrial plant & organic crop.

Germany announces plan to legalise cannabis for recreational use

Minister says legalisation could set precedent for rest of Europe, though plan is still subject to EU approval



📷 German health minister Karl Lauterbach also wants to make it legal to privately grow up to three cannabis plants. Photograph: Michele Tantussi/Reuters

Germany wants to make it legal for adults to purchase and own up to 30g of cannabis for recreational use and to privately grow up to three plants, the country's health minister has announced, saying the intended outcome

The REAL Green Deal



The **WORLD** has changed,
BUSINESS as well:

Environment comes into the equation

*Do more with less, produce less waste, durable and
compostable, offset climate change, go to the essential,
be as green as possible!*

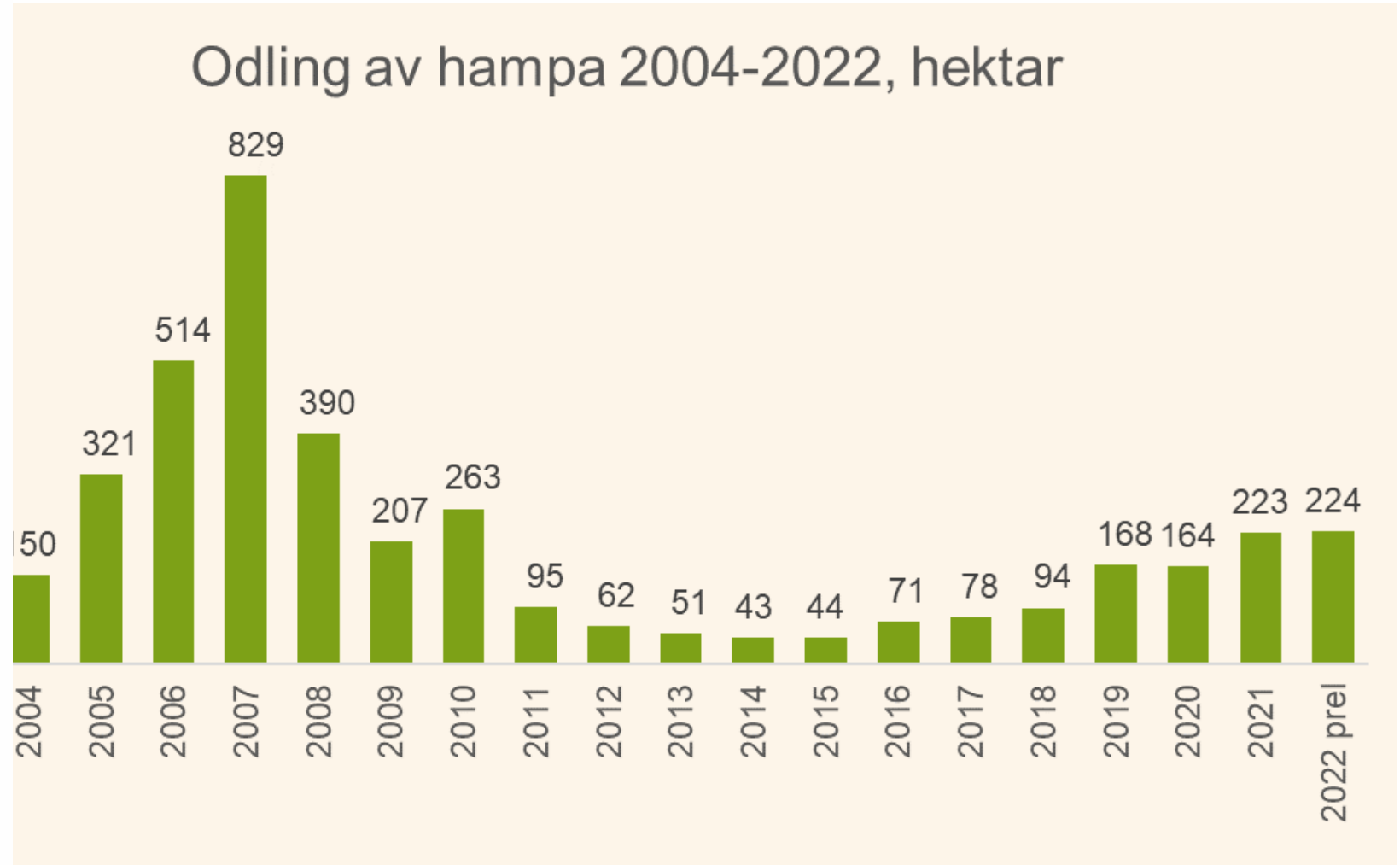
= Green Deal

Hemp: the real Green Deal!

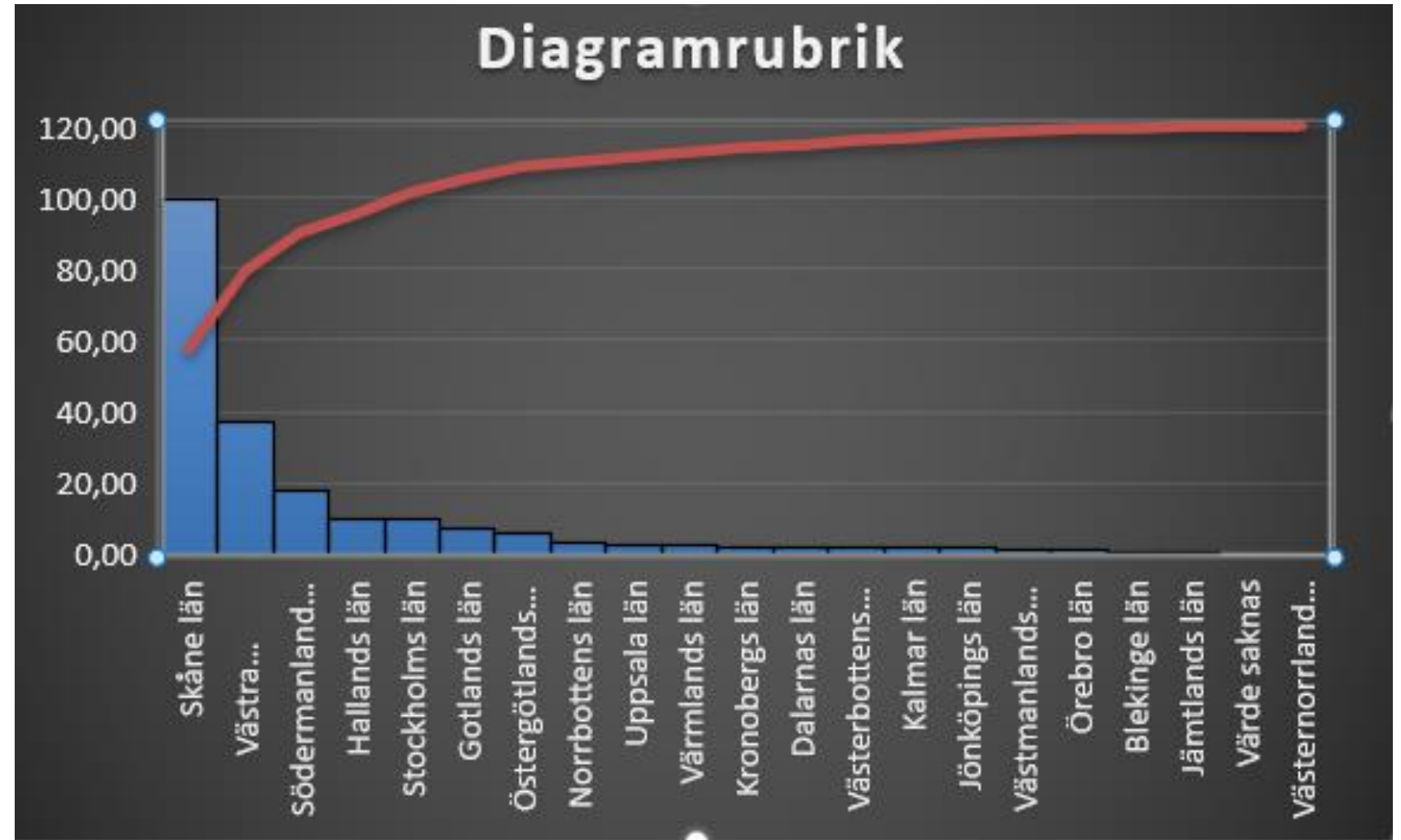
A multipurpose plant that provides
carbon negative raw materials

INDUSTRIAL HEMP CULTIVATION IN SWEDEN 2004 - 2022

2021: 94 different farmers on 223 ha, largest 41 ha, average is



2021: 94 DIFFERENT FARMERS ON 223 HA THROUGHOUT SWEDENS 21 COUNTYS, SKÅNE MAJORITY, SINGLE LARGEST FARMER: 41 HA, SMALLEST 0.001 HA



Hemp production in the EU

Hemp cultivation contributes to the European Green Deal objectives

Uses of hemp

Definition and provisions

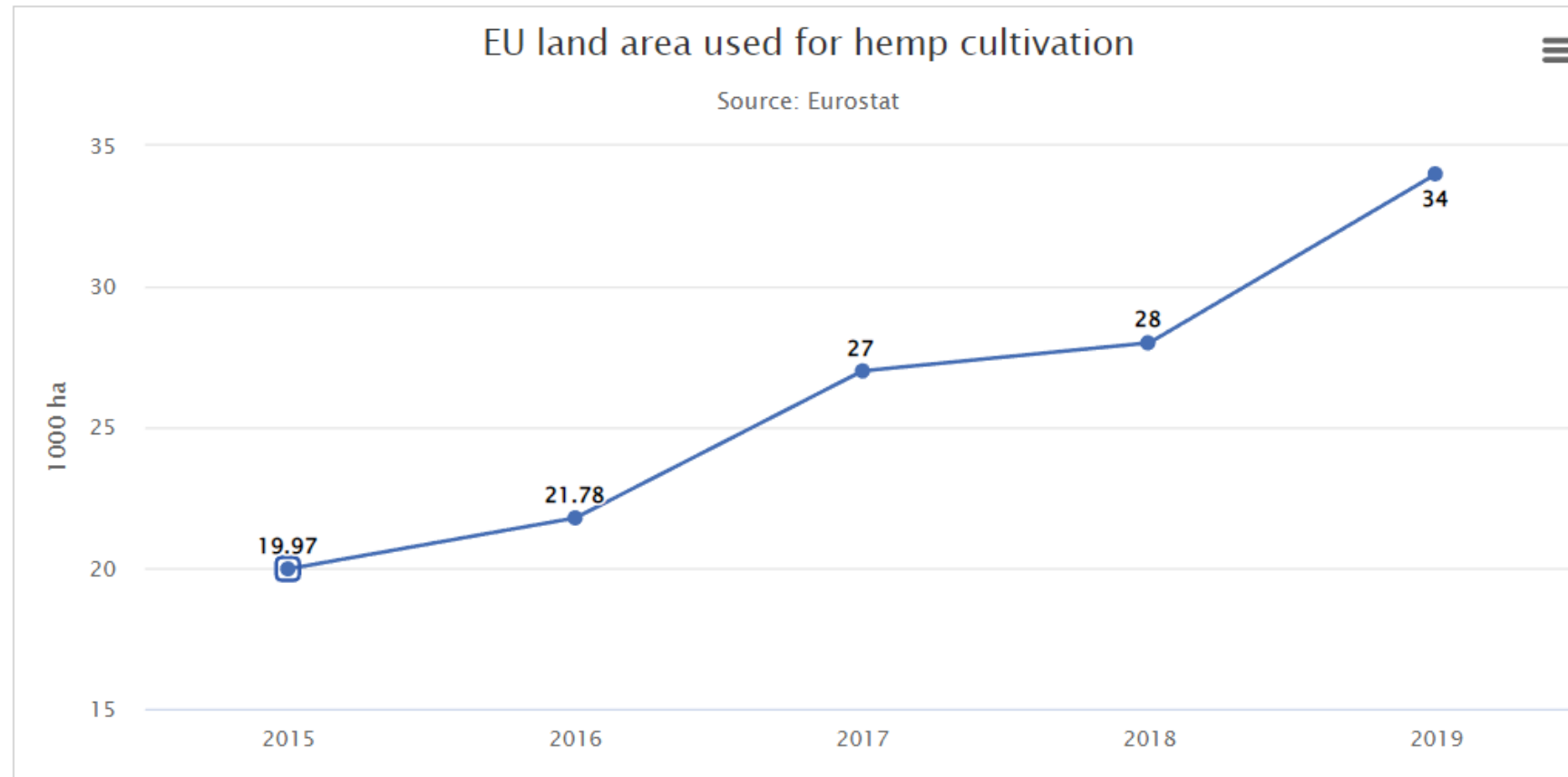
Support available under the CAP

Committees and expert groups

Legal bases

Hemp production in the EU

Hemp is a crop grown across Europe. In recent years the area dedicated to hemp cultivation has increased significantly in the EU from 19,970 hectares (ha) in 2015 to 34,960 ha in 2019 (a 75% increase). In the same period, the production of hemp increased from 94,120 tonnes to 152,820 tonnes (a 62.4% increase). France is the largest producer, accounting for more than 70% of EU production, followed by the Netherlands (10%) and Austria (4%).



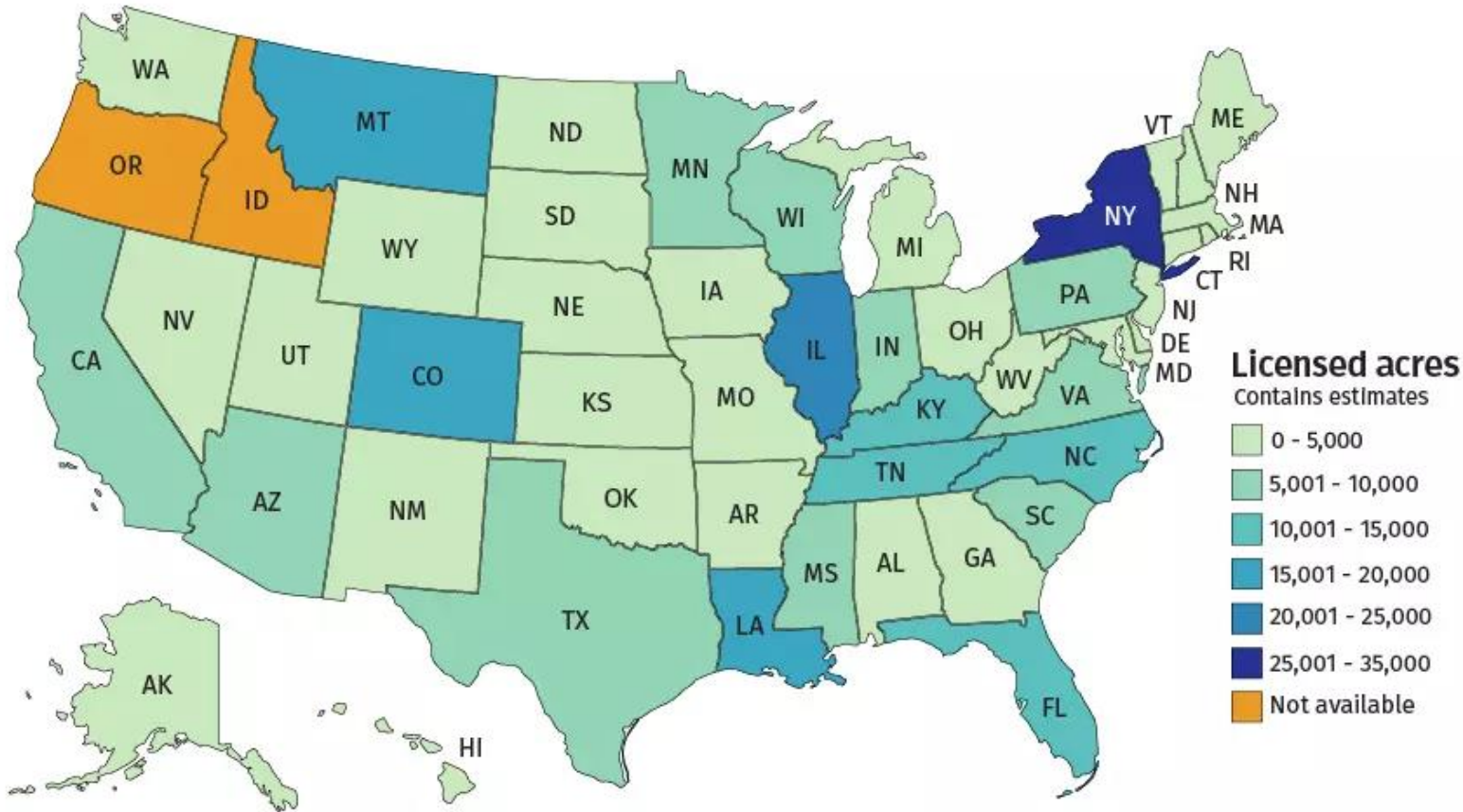
EU COMMISSION WEBPAGE

Hemp cultivation contributes to the European Green Deal objectives

Hemp has a number of environmental benefits.

- **Carbon storage:** one hectare of hemp sequesters 9 to 15 tonnes of CO₂, similar to the amount sequestered by a young forest, but it only takes five months to grow.
- **Breaking the cycle of diseases:** hemp helps to break the cycle of diseases when used in crop rotation. In addition, weeds are not able to grow due to the fast growth and shading capacity of hemp plants.
- **Soil erosion prevention:** dense leaves of hemp become a natural soil cover, reducing water loss and protecting against soil erosion. Hemp covers the ground just three weeks after germination.
- **Biodiversity:** flowering cycle usually occurs between July and September, coinciding with a lack of pollen production from other crops. Hemp produces large amounts of pollen. It also provides shelter for birds and hemp seeds are a food for animals.
- **Low or no use of pesticides:** hemp is susceptible to few pests because of the lack of natural predators, which means that the use of insecticides, herbicides, and fungicides can be avoided in most cases.

Total Licensed Hemp Acreage for 2021



The data reflects:

- A 24% decrease from the 375,000 licensed acres reported to the U.S. Department of Agriculture's Farm Service Agency in 2020.

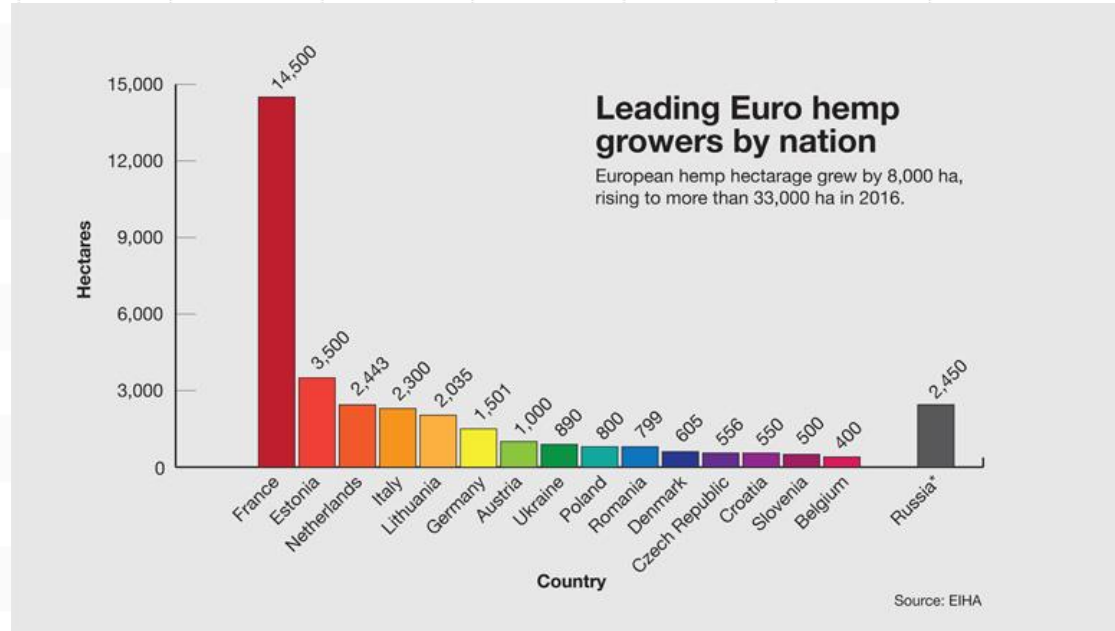
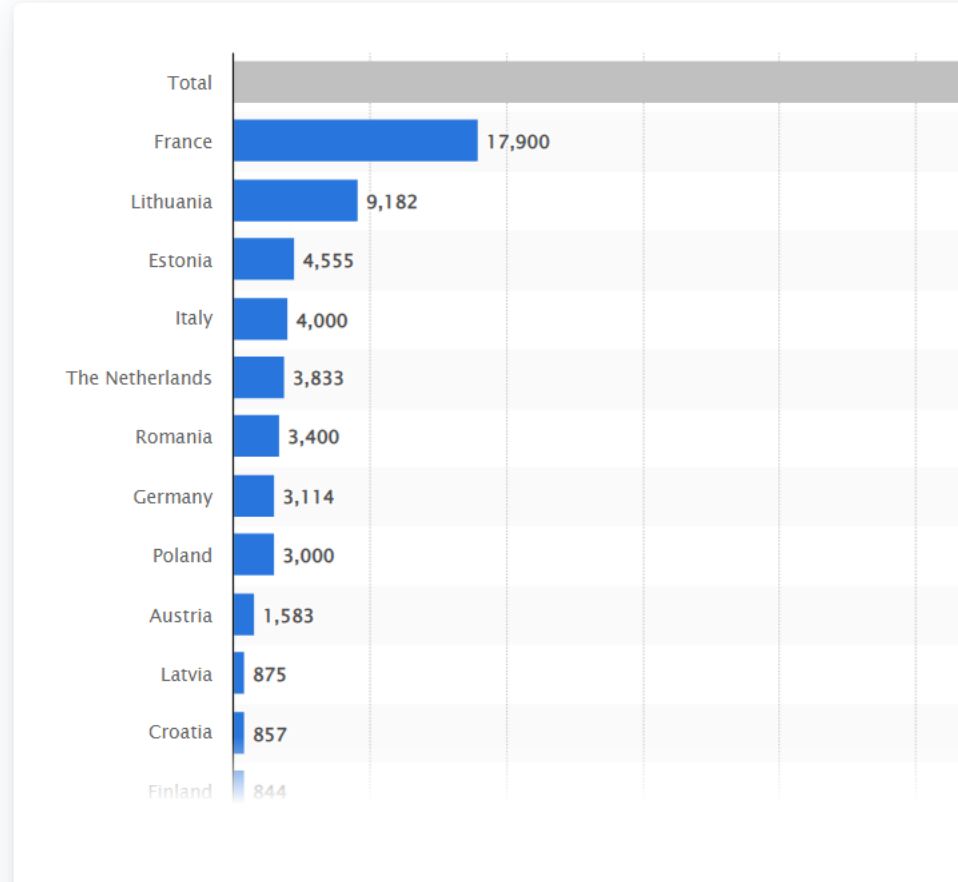
- A 39% decrease from the 465,787 total licensed acres of hemp across 47 states that reported to *Hemp Industry Daily* in June 2020.

In just two years, licensed hemp acreage plummeted 44% compared to 511,442 total licensed acres of hemp across 34 states in 2019, a record production year following legalization of hemp as a federally legal commodity crop with the 2018 Farm Bill.

That number was more than quadruple the number of acres licensed in 2018,

Agricultural area dedicated to hemp cultivation in Europe in 2019

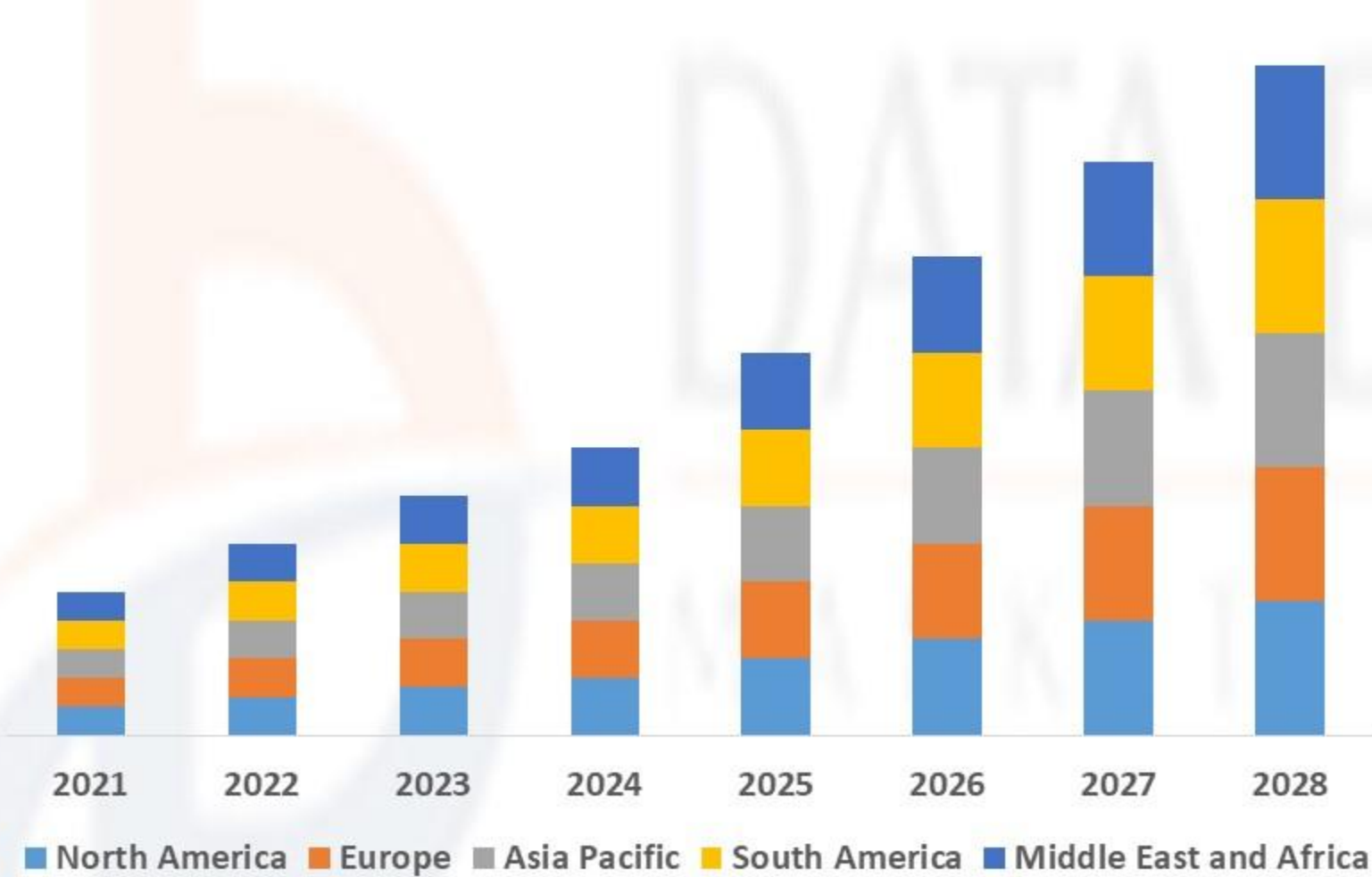
(in hectares)



0 10,000 20,000 30,000 40,000 50,000 60,000 70,000
Agricultural area in hectares

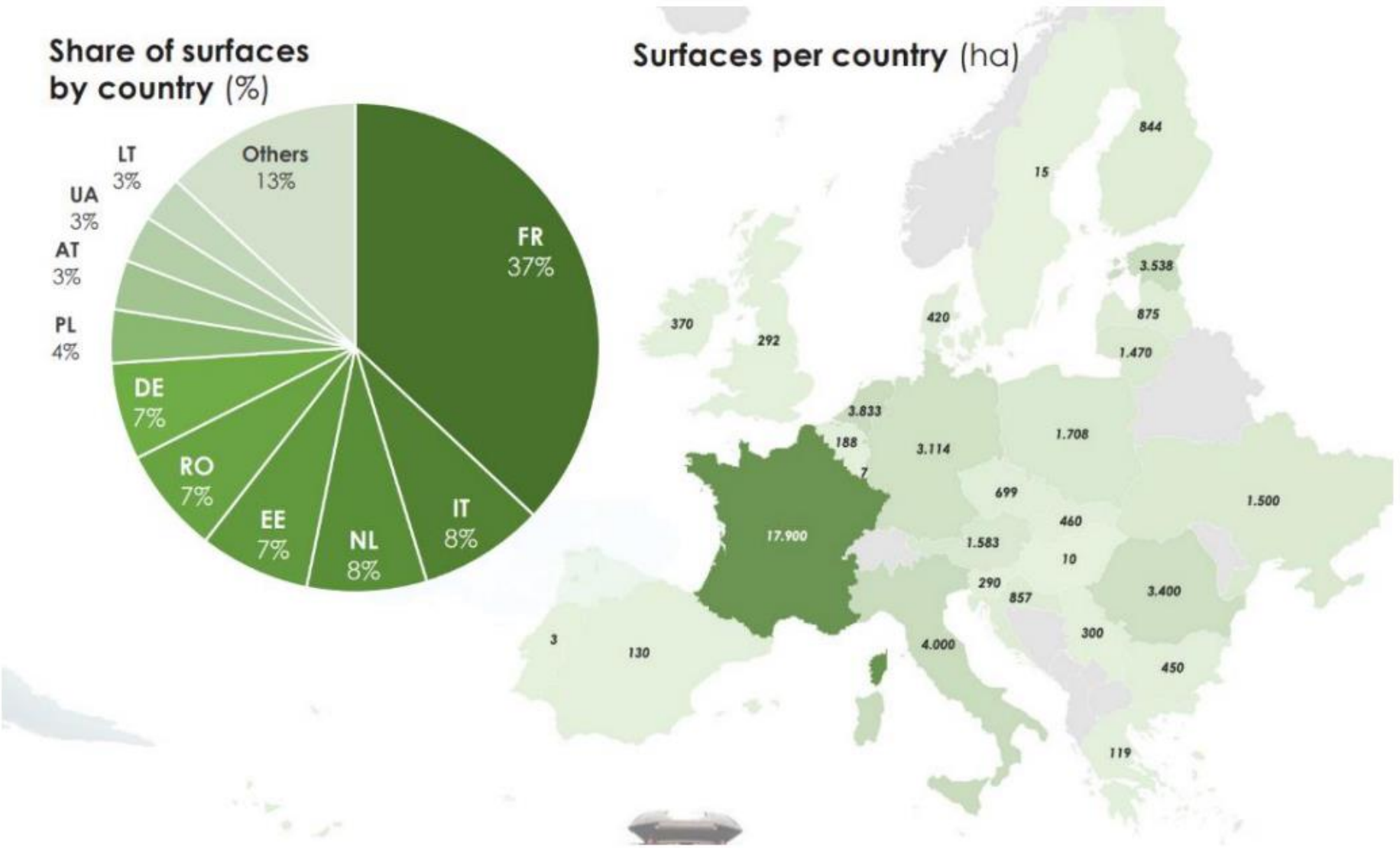
Global Hemp Fiber Market is Expected to Account for USD 0.51 Billion by 2028

Global Hemp Fiber Market, By Regions, 2021 to 2028



DATA BRIDGE MARKET RESEARCH

Surfaces for hemp cultivation by Member States



Source: European Industrial Hemp Association (EIHA) - Data from 2018



Examensarbete inom Lantmästarprogrammet 2005:24

SKÖRDEMETODER AV INDUSTRIHAMPA

HARVEST METHODS OF INDUSTRIAL HEMP



Ingrid Hansson



Sveriges lantbruksuniversitet
Swedish University of Agricultural Sciences

Fakulteten för landskapsarkitektur, trädgårds-
och växtproduktionsvetenskap

Framställning av högkvalitativa textilfibrer av industrihampa (*Cannabis sativa L.*) under nordiska förhållanden

- Production of high-quality textile fibers from industrial hemp (*Cannabis sativa L.*) in Nordic conditions

Helena Edén



MONIKA NORDLING

Monika Nordling presenterar sitt rykande färska Examensarbete för Kandidatexamen Textilteknologi, Textilhögskolan - Högskolan i Borås:

SVENSK HAMPÄ – FRÅN SPILL TILL INREDNING

Examensarbete för Kandidatexamen
Textilteknologi
Rapport nr: 2022.12.14

SVENSK HAMPÄ

– FRÅN SPILL TILL INREDNING

Monika Nordling

Examinator: Karin Högberg

Textilhögskolan

Högskolan i Borås



HÖGSKOLAN I BORÅS

CANNABIS TEXTILES

IN HEMP GARDEN CULTURES



GIT SKOGLUND

Git Skoglund is a Swedish textile researcher and journalist, who has studied the *Cannabis* plant and its many useful products since the early 1990s. Her primary focus is hemp textiles made by traditional cultures, and her writings are informed by extensive historical research, field journeys, laboratory studies, and exhibition productions.



In *Cannabis Textiles*, she explores traditional and manually manufactured hemp textiles, primarily from botanical and garden history perspectives, shedding light on the peoples behind their production from seed to sewing, while sharing methods to distinguish hemp fibers and fabrics from similar looking hop, flax, nettles and cotton. The text is richly illustrated with a wide variety of hemp textiles from Europe and Asia.



ISBN 978-91-527-4080-4



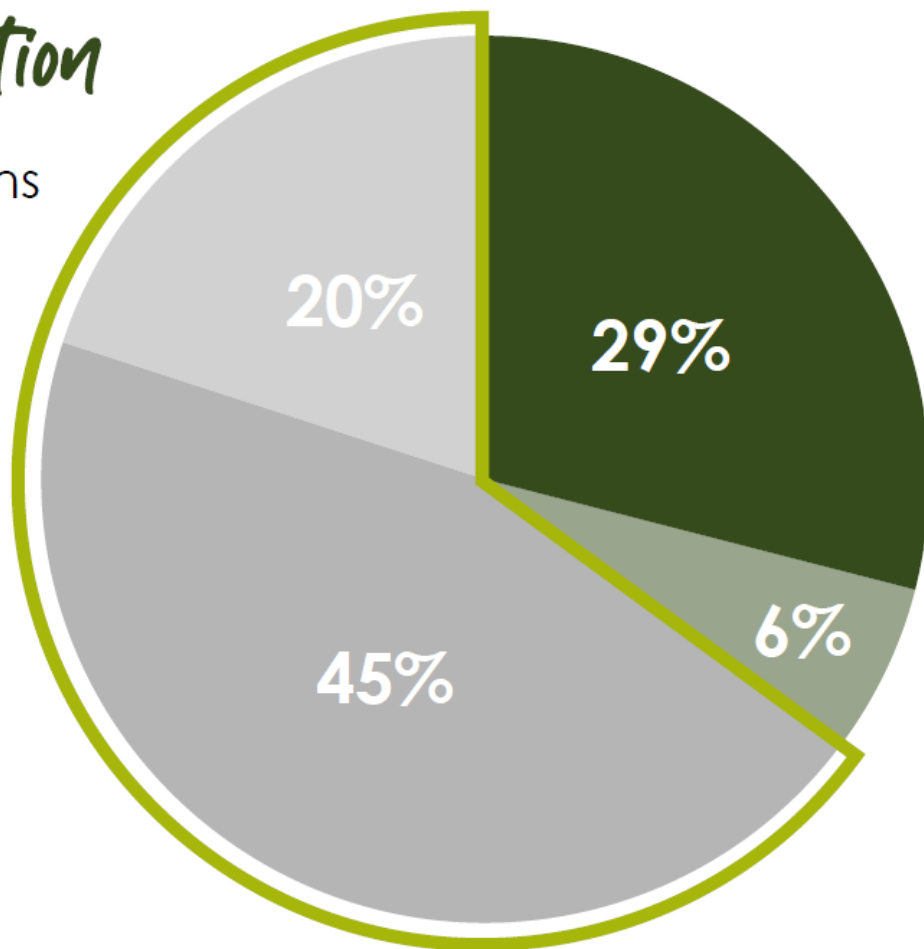
Market opportunities



Production

110 M tons

Discover Natural Fibres Initiative
DNFI.org



- Natural
- Cellulosic
- Synthetic filament
- Synthetic staple

147

Billion USD
Market

The Business
Research Company



Market opportunities



Production

32 M tons

2%



Discover Natural Fibres Initiative
DNFI.org

- Cotton
- Jute/Kenaf
- Wool
- Abaca/Sisal
- Hemp/Ramie/Flax
- Other

8%

3%

3%

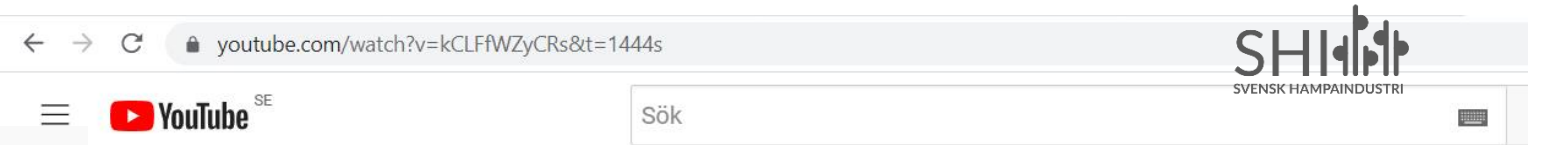
83%

60 Billion USD
Market

 EIHA
European Industrial Hemp Association

 SHI
SVENSK HAMPAINDUSTR

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SHI - SWEDISH HEMP INDUSTRIES

6 prenumeranter

HEM

VIDEOR

SPELLISTOR

KANALER

Uppladdningar ▶ SPELA UPP ALLA



Industrial Hemp - Innovation for a biobased & fossilfree...

56 visningar •
för 2 månader sedan

Undertexter



Steve De Angelo, "Industrial Hemp - Innovation For...

291 visningar •
för 2 månader sedan



Industrial Hemp - Innovation for a biobased & fossilfree future May 5th 2021

Spara



"HEMP IS THE ANSWER TO MANY DIFFERENT SOCIETAL CHALLENGES THAT DIFFERENT COUNTRIES ARE EXPERIENCING. IF EVERY COUNTRY WOULD GROW A LITTLE BIT OF HEMP AND HAVE A PROCESSING INDUSTRY AROUND IT. I THINK WE COULD CHANGE THE WORLD."

CLARA NORELL

THANK YOU!

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