THE BAROMETER OF EUROPEAN FLAX / LINEN 2015

FLAX, A GREEN AND INNOVATIVE FIBRE.
A EUROPEAN INDUSTRY COMMITTED TO OUR ENVIRONMENTAL, SOCIAL AND ECONOMIC ECOSYSTEM.

KEY INDICATORS & INFOGRAPHICS

A report by BVA & Deloitte
A leading player in its economic, social and environmental ecosystem, could European Flax be the Champion of Sustainable Development? The BAROMETER OF EUROPEAN FLAX 2015 offers an original insight.

**FLAX HELPS THE PLANET TO BREATHE**

Every year, the growing of Flax in Europe results in the capture of 250,000 tons of CO₂, which is a saving equivalent to driving a Renault Clio around the earth 62,000 times.

**RAIN WATER IS ENOUGH FOR EUROPEAN FLAX!** If tomorrow, all French people bought a linen shirt instead of a cotton one, it would save the equivalent of all of Paris’s drinking water for a year. Another striking point to the argument: buying a linen shirt corresponds to a saving of thirteen 1.5 litre bottles of water!

With 81,300 hectares of flax fibre cultivated in 2014 amounting to 80% of the world’s production, Europe is the N°1 name when it comes to this Continental speciality. The growing area extends from Caen to Amsterdam and boasts the same environmental virtues: zero irrigation, zero defoliant, zero waste, but especially ZERO GMO. A commitment undertaken by all flax producers, all signatories of the EUROPEAN FLAX Charter, the qualitative visa for European flax fibre in all its applications.

**HAS EUROPEAN FLAX ALWAYS BEEN THE FIBRE OF THE FUTURE?**

Between product performance and market reality, flax composites are poised to make a decisive leap. What is a composite? Two or more materials that by combining their properties create new ones. By incorporating technical flax textile fibres in these new-generation composites, the resulting reduction in weight, for the same strength level, leads to a reduction in fuel consumption.

**LIGHTEN UP!**

In aviation, all it takes is an airplane cabin interior and its service trolleys to be made using flax to deliver a weight reduction allowing for substantial savings in fuel. Around 2.1 million litres a year, the equivalent to 2555 Paris to New York return flights.

As for the automobile industry, if all the cars sold in the EU in 2014 had integrated a frame of flax composites it would have resulted in 462 millions litres of fuel saved per year, equal to the quantity of fuel consumed making 5.7 millions return journeys in a Renault Clio between Lille and Marseille.
LINEN, A FIBRE FOR DEMANDING CONSUMERS

Purchasers of linen are a reflection of the product they’re buying: twice as committed as the rest of the population (29% vs 14%), they carefully read the labels, and 61% say they are ready to pay more for a certified product, contributing to the emergence of a new collaborative society through the exchange of goods and services (22% vs 14%). A pioneering population in line with the demands of societal change: naturalness and comfort, local and renewable resources, bio-sourced innovation and durability!

“In order to make an inventory of the European flax industry’s strengths, CELC turned to the expertise of BVA and BIO by Deloitte to undertake a unique investigation. The BAROMETER OF EUROPEAN FLAX 2015 provides, and puts into perspective, socio-economic, technical and environmental information about the different stages of the life of flax: its cultivation, its transformation and its consumption.
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Flax has established itself in the daily life of consumers and businesses. Beyond its textile applications in fashion, lifestyle and interior decoration, flax – a European fibre - is utilized as a wellspring of innovation in the areas of design, sports and leisure, automotives, aeronautics, and so on.

In order to make a 2015 inventory of the flax industry’s strengths, the CELC turned to the expertise of BVA and BIO by Deloitte who provided, and put in perspective, a host of socio-economic, technical and environmental information (both quantitative and qualitative), on the different stages in the life of flax: its cultivation, its transformation, and its consumption.

The figures presented in this press kit, for the flax industry, and comparisons and equivalences, are either extracts directly drawn from reports and websites whose sources are presented at the end of the press kit, or calculated by BIO Deloitte and BVA through a combination of these same sources.

Beyond the collection of sources, the work of BIO by Deloitte and BVA consisted of ensuring the reliability and transparency of their calculations in order to provide the CELC usable and rigorous quantitative data.

20 May 2015
With 81,300 hectares of fiber flax cultivated in 2014, Europe is responsible for 80% of global production.

Flax is the only plant fibre originating in Europe!
FLAX, UNIQUELY EUROPEAN DOES THE PLANET GOOD

FLAX
A BREATH OF AIR FOR THE PLANET

Every year, the growing of Flax in Europe results in the capture of 250,000 tons of CO₂.

EQUVALENT TO THE CO₂ EMISSIONS GENERATED BY A RENAULT CLIO CAR DRIVING AROUND THE WORLD 62,000 TIMES
FLAX, UNIQUELY EUROPEAN
DOES THE PLANET GOOD

If tomorrow, all French people bought a linen shirt instead of a cotton one, the savings would be equivalent to the amount of water drank by the population of Paris in a year.

RAINWATER IS ALL THAT EUROPEAN FLAX REQUIRES TO GROW

1 LINEN SHIRT BOUGHT

= 13

13 1.5L BOTTLES OF WATER SAVED

FLAX
A NATURALLY FRIENDLY FIBRE

= 0 IRRIGATION
FLAX NONMOVABLE JOBS

Flax fibre contributes to maintaining the economic and social fabric in rural areas. Its cultivation mobilizes a skilled workforce, five times greater than that required for growing wheat.

= 12 000 direct jobs in the Growing & Scutching sector of the Flax industry
REQUIREMENTS FOR CULTIVATION

A well-defined territory that requires deep soil in which silt predominates; a moist maritime climate where temperatures do not exceed 25°C on average during the growing time; rainfall to cover all water needs naturally.

Even if 76% of the Europeans interviewed in 2014 are unaware of the fact, Europe is responsible for 80% of global flax production, from a wide swath of land extending through France, Belgium and the Netherlands, from Caen to Amsterdam.

Haute-Normandie, Basse-Normandie, Picardie, the North/Pas-de-Calais and the eastern part of the Ile de France are zones that bring together all these conditions and represent 99% of the land given over to the crop in France, all cultivated respecting the environment and biodiversity.

A "GREEN" FIBRE BY DEFINITION

Water requirements for flax are in the order of 600mm for 100 days of growth, covered by rainfall (400mm), a good reserve of ground water, and the moisture provided by dew (200mm). Therefore, zero irrigation and zero defoliant for this ecologically important crop which ticks the boxes of social, economic and ecological criteria - the three pillars of Sustainable Development.

A rotation crop renewed every 7 years, consuming very little nitrogen, the growing of flax boosts the structure and biological activity of the soil thanks to its taproots which sink to a depth of 1m. Very sensitive to its immediate environment, flax has a naturally positive effect on soil, and improves the quality of the following crop by 20 to 30%.

And that’s not all! Totally biodegradable, European flax is all waste-free, with a diversity of destinations beginning from the very first stage of processing. Long fibres for fabric, short fibres for paper or felt; seeds and oils for livestock feed, varnish, linoleum; shives for gardening, animal bedding, compost, etc. Every part of the plant is useful and utilized. Flax is now playing a part in the development of bio-composites, innovative new applications and real opportunities for the whole of the European flax industry.

THE GMO-FREE GUARANTEE

This commitment by the flax industry, the only European agro-industrial sector, is certified by the signing of the EUROPEAN FLAX® Charter.

By managing to conserve 250,000 tons of CO2 per year, flax is an powerful asset in the transition to a more solid and low-carbon economy, and a major feature in the immediate perspective of the European Sustainable Development Week [30 May / 5 June] and the negotiations of the COP21 [December 2015].

Flax is currently enjoying pride of place in the French Pavilion at Expo Milano 2015 where it has attracted a lot of attention!

All these elements commit the flax grower to place agronomics at the center of his argument and to question the alternating and management of temporary crops, physicochemical characteristics and soil management, but also the choice of variety when it comes to sowing. A skill set that gives European flax the best productivity in the world!
Flax corresponds perfectly with current patterns of consumption, influenced by all that is organic and ecological. For flax is a sustainable fibre: it does not require irrigation, its processing methods respect the environment, and it is totally biodegradable. Add to this the fact that flax is hypoallergenic, antibacterial, and thermoregulatory. It is a hugely modern product, with a profile that sets it apart as a new-era raw material.

Nelly RODI
FOUNDER, AGENCE NELLY RODI

Flax is in line with the ambitions of luxury, both in terms of sustainable development as well as creation, in fashion, decoration, in furniture or «services» (five-star hotels are increasingly opting for linen sheets for the pleasure and comfort for their clientele). It is a guarantee of the reputation of French luxury and art de vivre.

Françoise MONTENAY
President of the Economic Commission COMITE COLBERT

The growing of flax and hemp has a positive effect on agro-ecosystems and the landscape, and offer a welcome respite for soil quality. Report by the European Commission, Brussels, 2008

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Three elements have played a vital role in the history of Hermès: leather, metal and linen. Linen became the stitch and the signature of the house. It’s a linen with multiple qualities: it’s rot-proof and indestructible. And just like some leather, linen develops a patina, it moves, evolves, lives, has a soul.

Pascale MUSSARD
Creative Director PETIT H (HERMES)

Should we see flax as emblematic of Slow Design? Like Ludwig Van der Rohe, I think a material is good when it is used wisely, whether it be natural or artificial. The users get to rediscover that the production of this natural fibre and its transformation are environmentally friendly.

Giulio CAPPELLINI
Creative Director of Poltrona Frau Group
FRANCE: THE PODIUM OF AGRICULTURAL STARS FOR EXPORT

EUROPEAN FLAX
WORLD CHAMPION

Europe, N°1 producer with 132,407 tons of long fibres produced in 2013 + N°1 exporter with 70% exported to the international market.

EUROPEAN FLAX FUTURE FIBRE SINCE FOREVER

90%
Flax

47%
Champagne

33%
Wine

FRANCE: THE PODIUM OF AGRICULTURAL STARS FOR EXPORT (VOLUME)
FLAX
A STRIKING SELLING POINT!

Material is the fifth criteria for purchase when it comes to women's apparel. However, corresponding to less than 1% of fibre textiles sold worldwide, linen has become an attention-grabbing selling point!
Flax, the very first textile developed by mankind! Flax fibres dating to 36,000 BC have been discovered in a cave in the Caucasus.

Flax today, a major agro-resource and a high-performance fibre for a new generation of composites.
THE FLAX EFFECT, A MORE FUEL-EFFICIENT AIRPLANE

If an aircraft cabin interior and its service trolleys had used integrated flax composites, the result would be a plane 170 kg lighter.

EUROPEAN FLAX FUTURE FIBRE SINCE FOREVER

2,555 RETURN FLIGHTS PARIS-NEW YORK PER YEAR

PARIS

NEW YORK

LEADING TO A SAVING IN KEROSENE

2.1 MILLION LITRES PER YEAR
The Flax Effect - A Lighter Car

If all the cars sold in the EU in 2014 had used flax-reinforced composites, this would mean that 462 million litres of fuel it would be saved each year.

Reduction in weight

-60 Kg

Which corresponds to the amount of fuel needed to undertake 5.7 million return trips Lille – Marseille.

European Flax
Future Fibre Since Forever
FLAX
SPORT WITHOUT
THE SHOCKS

The end of Tennis Elbow!
With a racket containing only 15% flax, the level of shock absorption is already reduced by 22%.
36,000 years ago, humanity discovered a fibre with an infinite number of uses. Today, it’s transporting us!

1st plant fibre textile in the history mankind, flax is a major agro-resource with a level of eco-innovation that is more than ever a vector of French excellence on the international stage.

While it may only represent 1% of global plant fibre textiles, flax has been continually reinvented from its very beginnings and has accompanied the human race though all its (r)evolutions.

From the first bundles of flax, twisted and colored with pigments, found in a cave in Georgia (36,000 BC) to the recent eco-designed surfboards, the high-performance fibre used is one and the same.

And yet, if 87% of the Europeans interviewed in 2014 can describe flax as an innovative fibre, 63% are unaware of its technical applications.

Flax remains a primarily textile purchase (60% apparel, 57% home textiles, 41% decoration, 35% bathroom textiles).

It’s chosen for its naturality (67% of Italians), for its lightness and comfort (35% of French), and its durability (22% of Belgians and British).

Easy to work with, flax in linen form is embraced by textile industry professionals: it takes color easily and blends well with other fibres.

Outside of the indispensable wooven, linen knit has built itself a nice little reputation, taking on all gauges and folding through the use of new stitches. Linen piqué, fleece, outdoor and double-faced linens are just some of the results from years of research and experimentation by European spinners and knitters.

All committed to the strict criteria surrounding their production and their supply in order to attract the 61% of consumers who say they are ready to pay more for a certified product.

EUROPEAN FLAX
FUTURE FIBRE SINCE FOREVER

INNOVATIVE AND SUSTAINABLE TEXTILES

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SLOW FASHION - FAST FLAX!

European linen is placing eco-finishes at the heart of new developments: low-impact reactive dyes, easy-care eco-treatments, enzymatic finishes, GOTS and OEKO-TEX certification. All attractive assets for slow fashion.
PROVEN MECHANICAL PERFORMANCE:
- Low density (1.45g/cm³ versus 2.55g/cm³ for fibreglass)
- Greater rigidity than fibreglass
- Higher vibration absorption capabilities than carbon and glass fibres
- Thermal insulation higher than that of carbon fibres
- Acoustic insulation higher than that of carbon and glass fibres
- Biodegradability

What is a composite? Two or more materials that combine their properties and thus develop new ones.

The incorporation of flax fibres in the latest generation of composites leads to a significant reduction in weight, while maintaining the same strength levels, resulting in lower fuel consumption. A bonus for aerospace or automotive industries concerned about making energy savings.

If the three sectors driving R&D to date have been aeronautical, nautical and automotive, it’s in the area of Sports and Leisure that the applications are really kicking off.

For the comfort of the novice as much as for the needs of the advanced competitor, the equipment’s lightness and shock absorption capabilities are key assets to ensuring optimum performance.

Flax fibre – with its proven environmental qualities – boasts mechanical characteristics equal or superior to fibreglass; and in our ‘Earth’ range, flax partners harmoniously with wood and cork for paddles produced without the use of varnish. High performance and naturalness act as selling points for an ever-increasingly committed consumer!

Benot TREGUILLY, Communication Director BIC SPORT

The “Dual” tables were created in a vision of modern eco-design. They explore the duality contained in flax fibre: I wanted to highlight the emotional charge of this material, a warm and natural fibre, which refers in its formatting to other composites of a more technological appearance.

Noé DUCHAUFOUR LAWRANCE, Designer

The use of natural fibres is an important step in the efficient use of resources.

Since 2008, we have used flax to create some of our tennis rackets: those for both regular players and intensive players. The flax we use is produced in Normandy and is found in the racket’s graphite frames. The flexibility of this natural fibre provides maximum comfort to the players. Apart from tennis rackets, at Decathlon we also use flax for squash rackets and table tennis paddles; other Passion Brands at Decathlon use flax, too, including Wedzé and Caperlan.

Eric Briet, tennis material Product Manager at Decathlon, for the ARTENGO brand
6/10 consumers declared themselves ready to pay more for a product with a certified European flax origin.
Flax is taking its place in the composition of our everyday products in order to improve the ways in which they are used. Furniture design, the sports and leisure industry, sailing, construction, home improvements and, next to emerge from the R&D laboratories, aeronautics and rail. The number of sectors exploiting the special virtues of flax composites is broad and growing.

Mixed with plywood in table tennis paddles, and with carbon or glass fibres in tennis rackets, flax optimizes shock absorption and improves handling and play.

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From leisure to competitive sport, skis are defiantly advancing into the realm of eco-design. The ultra-technical result [composites reinforced with flax combined with traditional wood] optimizes the absorption of vibrations and reduces stress on muscles and joints. Even the poles include flax fibre, for a level of sturdiness and strength comparable to carbon fibre.

Even the poles include flax fibre, for a level of sturdiness and strength comparable to carbon fibre.

A mountain biking helmet containing flax fibre offers an excellent level of shock absorption, while the city bicycle helmet combines lightness and greater ventilation thanks to flax's elevated capacity for wicking away moisture.

Buyers of flax/linen are a reflection of the product itself. Twice as committed than the rest of the population (29% vs 14%), attached to tradition while also resolutely looking to the future, these enlightened citizens are the torchbearers for a changing world.

They commit every day to helping to change the system. They are twice as likely as flax non-buyers to take part in civic activities: protest marches (25% vs 17%), online petitions, community-supported agriculture (25% vs 15%), volunteer organizations (28% vs 20%), social finance (23% vs 14%), crowdfunding.

A mountain biking helmet containing flax fibre offers an excellent level of shock absorption, while the city bicycle helmet combines lightness and greater ventilation thanks to flax's elevated capacity for wicking away moisture.

They are contributing to the emergence of a new collaborative society by exchanging goods and services (22% vs 14%), or participating in the enrichment of open source internet content (20% vs 13%), for purposes of circular economy and co-construction.

Finally, they make up a population of active trailblazers in what we might term the post-oil world and choose flax for its intrinsic qualities which they see as being in perfect harmony with the requirements of societal change: natural and comfortable, local and renewable sources, bio-sourced trad-innovation, durability.

Depending on the frame part, flax can be substituted for carbon at between 20% and 80% of the total. Based on a trial carried out during an 80km race lasting 2hrs 50mins.
The fate of the 546,000 French pleasure craft*, most of them produced using rot-resistant composites, is a pressing question. Integrating flax is a solution towards improving their recyclability. Gwalaz, designed by the skipper Roland Jourdain, is a 7-meter-long trimaran weighing 520kg, reaching speeds of up to 16.4 knots. It is composed of 110 kilos of flax fibres, 33 kilos of balsawood and cork, and 285 kilos of resins of which 30% are bio-sourced using molecules drawn from colza. The flax acts as a structural reinforcement material, substituting fiberglass.

Two semi-rigid boats, eco-designed through the combination of a hard composite shell and an inflatable float were awarded the Prix JEC Innovation Award 2013 in the Sports and Leisure category. The AirEthic is a mass-produced boat while the Z-Concept is a “concept boat” integrating all aspects of ecological impact reduction: recyclable thermoplastic materials, eco-sourced materials, clean processes and an electric motor.

ZODIAC

* According to the French Nautical Industries Federation, the average age of the 546,000 pleasure boats currently in use is 23 years, with their retirement expected by the time they reach their 30th birthdays.

Environmental and regulatory pressures are forcing advertisers to establish increasingly selective specifications for their equipment. Objective: to reduce emissions of CO2 and lessen their vehicle's environmental impact. One of these solutions: putting lighter materials at the forefront, particularly flax composites. In a car, flax can be found in door panels and parts, the roof, the seat shell back, the rear shelf, the dashboard, the interior panel and the base of the trunk. DAIMLER (SMART), CITROËN, JAGUAR, MERCEDES, OPEL, PEUGEOT

The intrinsic qualities of flax fibres - torsion resistance, lightness, flexibility of the material, pleasant to touch, biodegradability – is driving the increased interest of designers who use them primarily as structural parts. These pioneers enthusiastically create complex forms in flax composites whose fibres generally show on the surface of the finished product to heighten the aesthetic effect: chairs, armchairs, tables, lights, desks. FRANCOIS AZAMBOUR, JM MASSAUD, NOÉ DUCHAUFFOUR LAUWRANCE POUR SAINT LUC EDITIONS, STARCK POUR MAGIS, M DESIGN AZ&MUT

The CLARA ukulele and El CAPITAN guitar were produced in natural fibre composites which provide remarkable acoustic quality, along with lightness and strength. Concert-level instruments with superb sound quality, robust and easy to transport. BLACKBIRD

Several awards have highlighted the quality and innovative nature of the glass/flax membranes used for mass-produced automobile speakers since 2013: Auto Sound Magazine_Japan, EISA Award_Europe. The membrane of the 900 Aria speaker is made from an advanced composite described as being like a «flax / glass sandwich» which plays a fundamental role in the membrane’s sound neutrality, offering a more balanced sound, better dynamics and a more detailed register. FOCAL

Visible flax fibres give products an undeniable extra aesthetic dimension. Several products in our daily lives stand out as a result of this display of naturality.

Lightweight glasses in a flax composite that combines strength and impermeability. CUSTOM6

A suitcase rendered shockproof thanks to the technical capabilities of flax [composite 50% flax/polyamide thermoplastic resin]. DELSEY

A notepad serving as a case for a reader or a tablet, and protected from shocks and temperature fluctuations, using a technique involving a needled flax/recycled polypropylene mat, affixed and stitched to a hydroentangled/viscose interior. TAPEGEAR

A 100% Made in France cot bed in flax composite, shielding the baby from intrusive noise while integrating into the fabric of the family through an optimized design for portable use. A philosophical and technical revolution! BBDO FR
SOURCES

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PAGES 34 _Combination of two sources:
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_ BVA study “Baromètre de l’engagement durable des citoyens 2014” – A study carried out on 1,000 representative members of the population aged from 18 years. Online questioning in March 2014 using the quota method.

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About CELC —
The European Confederation of Linen and Hemp (CELC) is the only European agro-industrial organization bringing together and federating all the stages of production and transformation for flax and hemp. It is the specialized spokesperson for 10,000 European companies of 14 countries, overseeing the fibre’s development from plant to finished product. Founded in 1951, the CELC is a source of pioneering thought, economic analysis, industry consultation and strategic direction.