



John **England**

&

**Fergusons Irish Linen**

# The Story of Flax - Linen

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The smart green sustainable fibre

1st in the world in quantity and quality,  
with ethical production carried out by a skilled local  
workforce, in compliance with the rules of  
the International Labour Organization.

Source: 2015 Harvest figures - 2015/2016 Campaign, CELC Cultivation-Scutching, Sept. 2016

97,000 hectares  
= 133,000 tonnes of long fibres  
= 80% of world's production



# FLAX CULTIVATION

*in 10 steps*  
*and just 120 days*



MARCH

APRIL

MAY

JUNE

JULY

AUGUST

SEPTEMBER

OCTOBER

## Step 1 \_ Soil preparation

The planting determines the crop's future potential.

**Flax is grown according to a crop rotation method,**  
with the rotation renewed every 6 to 7 years,  
**regenerating the soil for the succeeding crops:**  
beet, wheat, potatoes, etc.



## Step 2 \_ Sowing

*mid-March \_ mid-April*

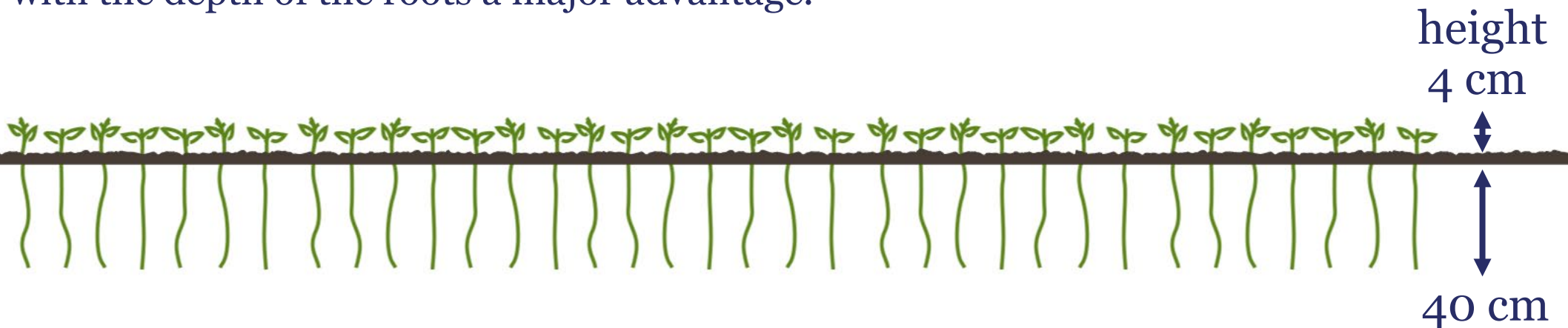
**Today's flax farmer can choose between the twenty or so varieties available.**

In addition to improving yields, new varieties enable plot-specific sowing that takes into consideration potential lodging and disease criteria; incorporating fertiliser savings and early harvesting criteria for a regulated staggering of maturation.



## Step 3 \_ From germination to 4 cm

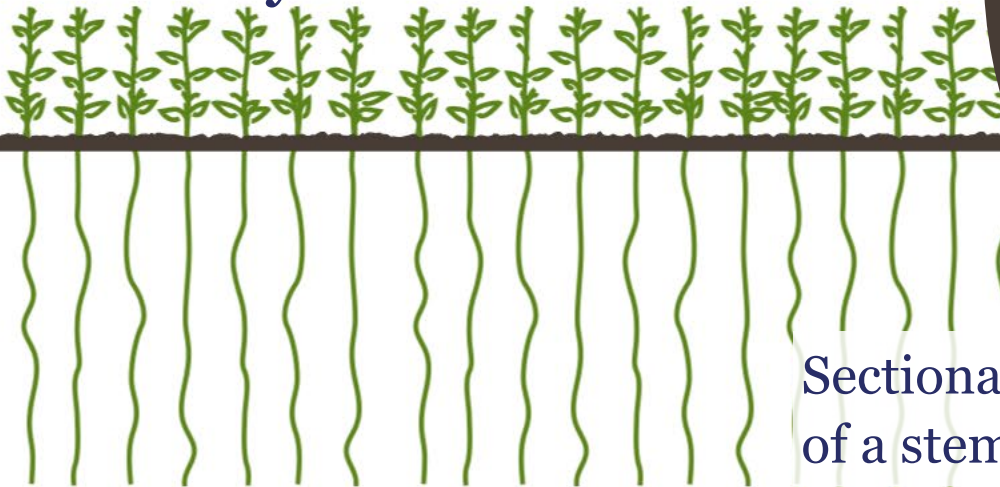
**The roots are ten times longer than the height of the plants.**  
The silty soils and oceanic climate give the flax a special quality,  
with the depth of the roots a major advantage.



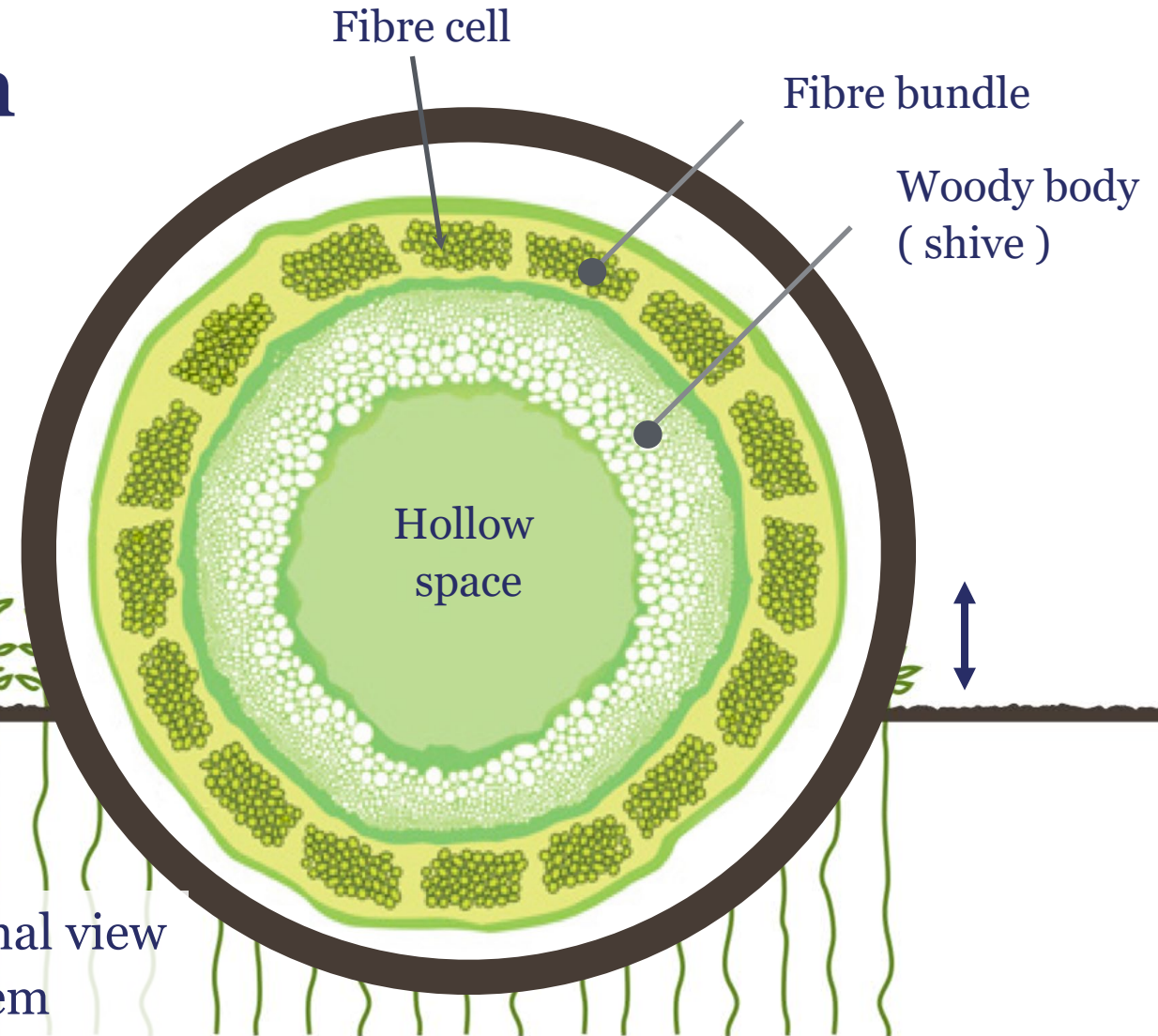
## Step 4 \_ From 4 to 10 cm

### Flax fibres are bast

**fibres:** they are contained within the plant stem surrounded by a fine woody outer layer.



Sectional view  
of a stem



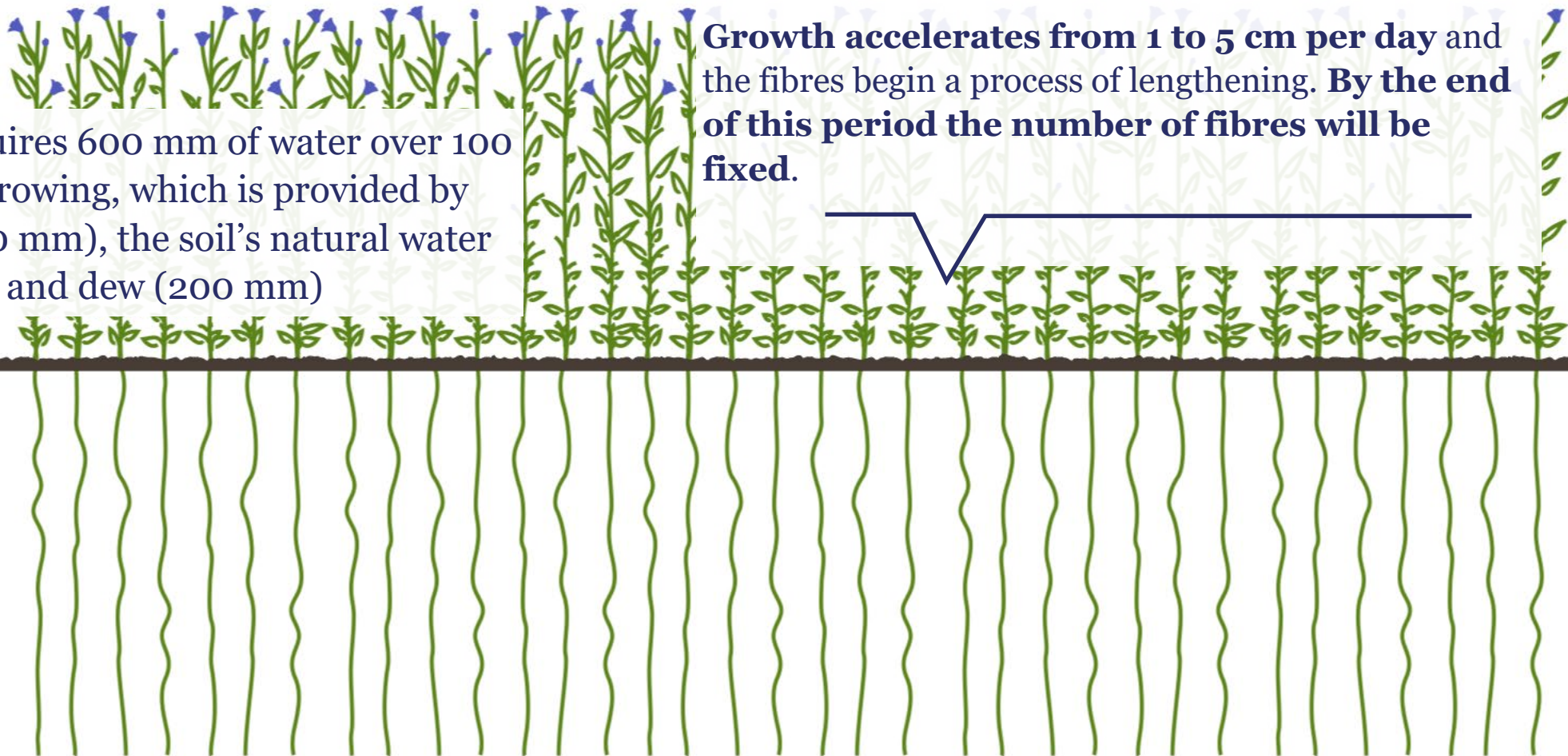


## Step 5 \_ From 10 cm to flowering

height : 80 cm  
to 1 m

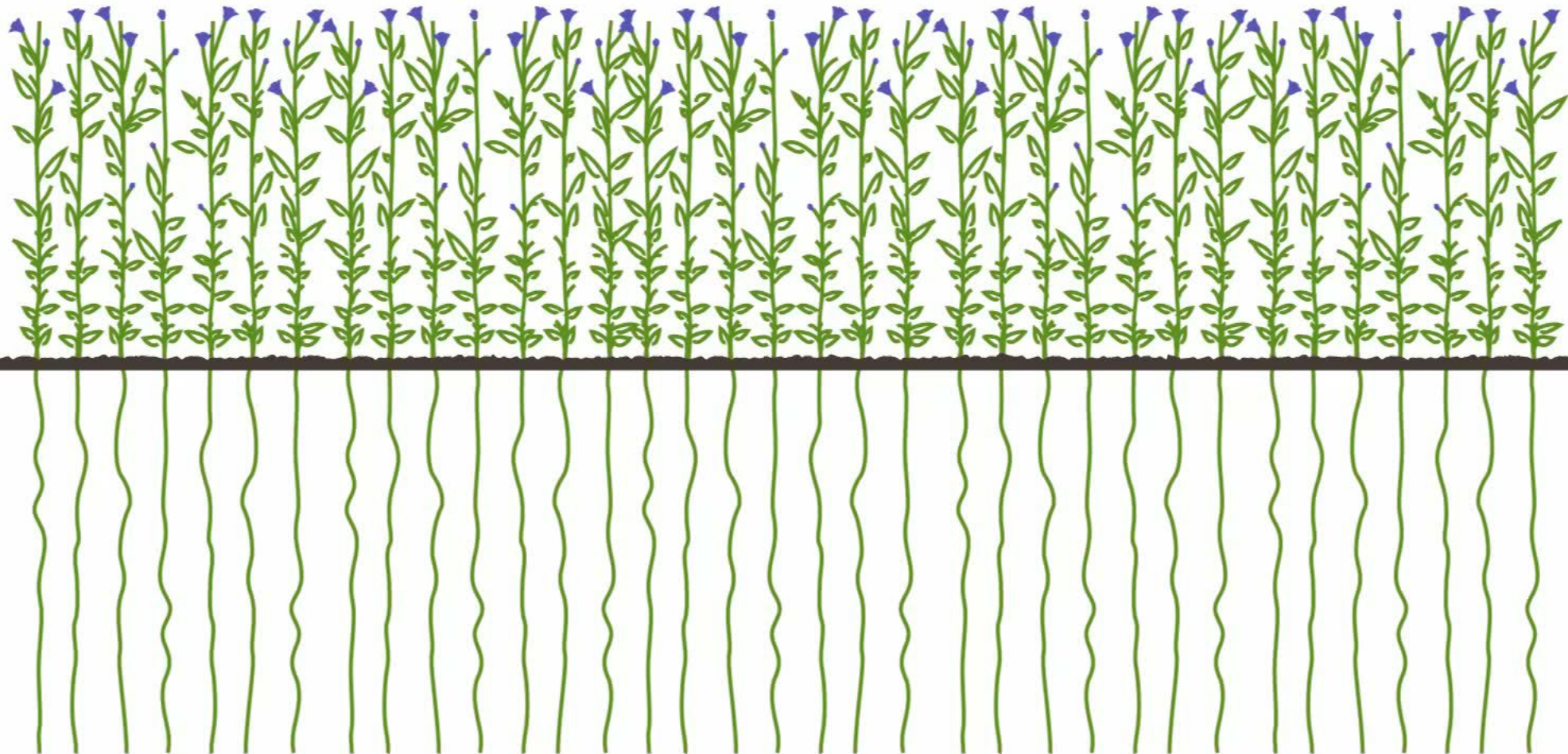
Flax requires 600 mm of water over 100 days of growing, which is provided by rain (400 mm), the soil's natural water reserves, and dew (200 mm)

**Growth accelerates from 1 to 5 cm per day and the fibres begin a process of lengthening. By the end of this period the number of fibres will be fixed.**



# Step 7 \_ Maturity

*July*





MARCH

APRIL

MAY

JUNE

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SEPTEMBER

OCTOBER

The time for harvesting has arrived...





# Step 8 \_ Pulling

## *July*

The flax isn't cut but is instead pulled up, preserving the length of the fibres contained within its stem.

Plants are laid on the ground in swathes (layers of flax one meter wide).

**The roots** that remain in the ground after harvesting enrich the soil and **confer on flax its status as an excellent crop for rotation**: an asset that increases the output of the following crops by up to 20%.

Pulling occurs about 5 weeks after flowering.



Seed capsule extraction enables the collection of seeds which will be used for the following season's sowing.

## Step 9 \_ Retting

The first natural phase in the processing of the plant into fibre, **retting stimulates the separation of the fibres** by breaking down the natural cement binding them to the straw.



**This natural action is performed by micro organisms present on the soil,** a suitable dose of rain and zero chemicals.

The swathes are turned halfway through the process.



## Step 10 \_ Collecting and Stocking

The swathes are rolled up into large balls, collected by machine and stocked until it is time to extract the fibre. Thus harvested, **the flax can keep for a long time without deteriorating.**



# FROM PLANT TO LINEN FABRIC *in 7 steps*





## Step 1 \_ Scutching



**Scutching is an entirely mechanical process, without the use of chemicals, that takes place throughout the year.**

Facilities for scutching are located in the immediate proximity of the fields.



## Step 2 \_ Combing

**Combing**, also known as hackling, **is carried out by the scutcher or the spinner.**



## Step 3 \_ Preparation for spinning

**During preparation, slivers of combed flax are mixed together, blending several batches of fibres originating from different fields, regions and years.**

This unique know-how, comparable to the methods used for champagne and cognac, allows the qualities of each batch to be combined and to produce a fibre that is smooth and consistent over time.



**The higher the required yarn quality, the higher the number of batches: a requirement that in recent years has led to extreme mixtures, with up to 32 different batches!**

## Step 4 \_ Spinning

The techniques vary depending on the type of yarn that is being produced:

- **Fine yarns destined for clothing, home linens, etc., are obtained through “wet” spinning** with immersion in water heated to 60°C. This soaking facilitates the smooth separation of the fibres and allows for a great fineness to be achieved.

- **More rustic and thicker yarns**, for decoration, rope, etc., are produced by “dry” spinning.





## Step 5 \_ Weaving

**A fabric is the result of the crisscrossing of warp yarns** (running in the direction of the fabric's length) **and weft yarns** (running crossways, its measurement equalling the fabric's width). The rhythms this intertwining undergoes – weaves – create the fabric's pattern and texture.

The exceptionally broad range of possibilities, combined with the choice of thicknesses and thread effects make it possible to develop a multiplicity of creative fabrics for fashion, home linens, decoration, and so on.

**Linen has freed itself from the vagaries of trends to become synonymous with innovation.**

It includes classic fabrics, twills (like denim), herringbone; more sophisticated satins and crêpes; jacquards that accommodate designs woven in colour or monochrome (damask); terrycloth and velvet, along with more unexpected possibilities.









## Step 6 \_ Finishing

Linen fabrics lend themselves to all kinds of finishings.

John England specialises in a pre-shrunk, sustainable soft wash finish. Popular are also loom-state, softened and classic formal finishes.

All finishing is now carried out in our Banbridge, Co. Down Factory (Northern Ireland), greatly reducing our carbon footprint.



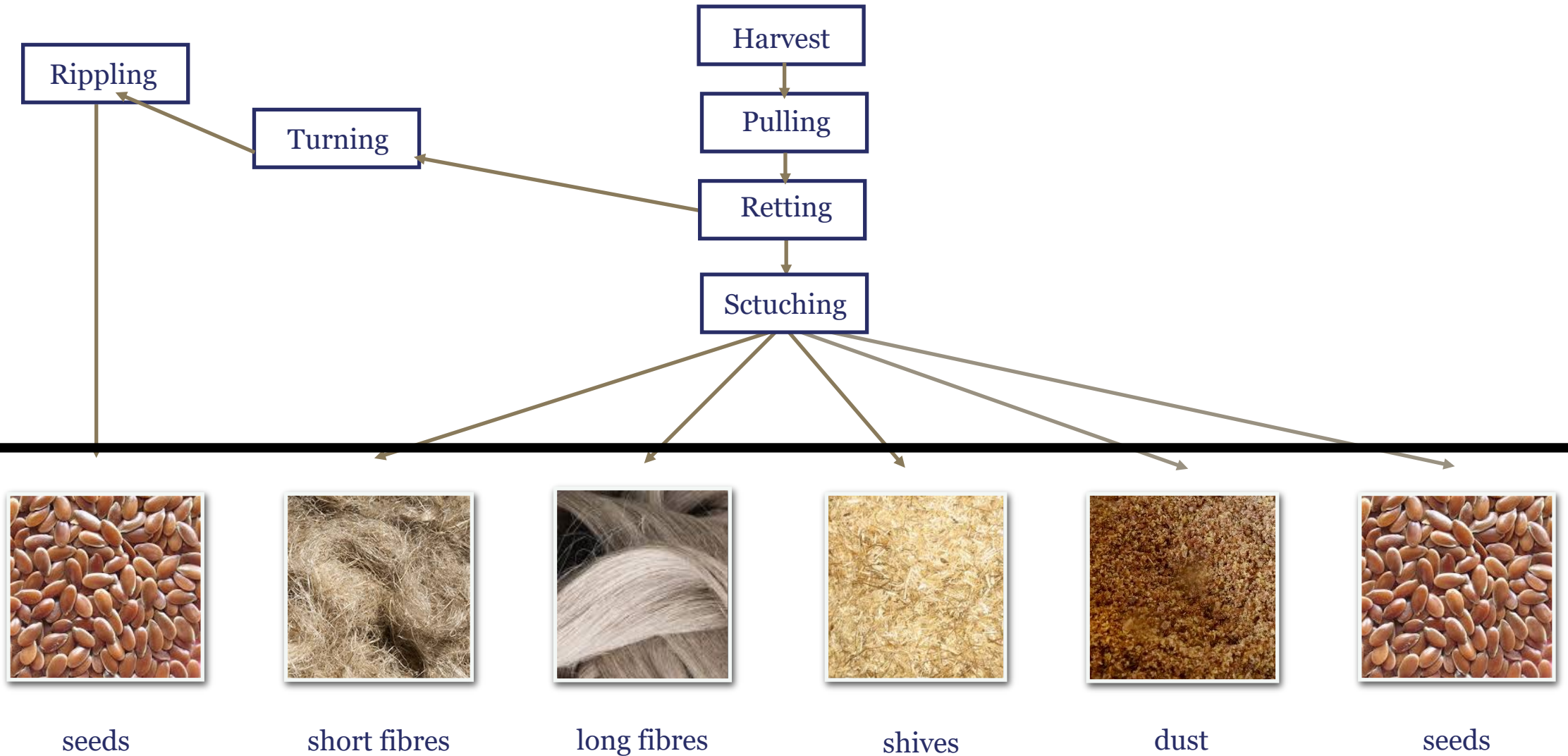
**Soft Washed linen** is obtained through a combination of finishing technologies.

The result offers a cosy and soft handle and a supple texture that doesn't require ironing.



# FLAX/LINEN, A REACH NICHE









Flax/Linen,  
a multi-use fibre for numerous  
and innovative applications:

60% fashion textiles,  
30% lifestyle textiles,  
10% other products, including composites.



# FLAX, A NATURAL EXCEPTION THAT BENEFITS BOTH THE PLANET AND HUMANKIND







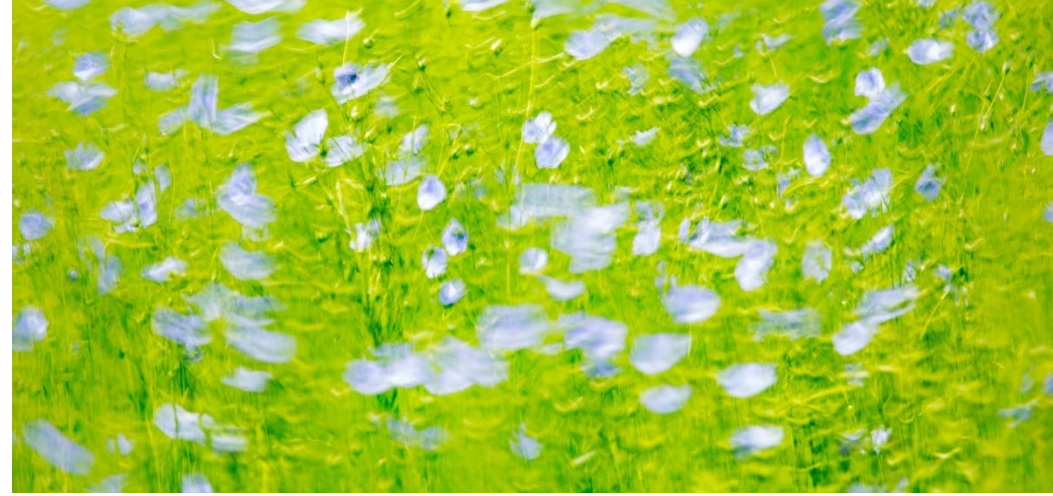
*« Concerning the environmental impact of flax and hemp cultures, the evaluation report underlines that these cultures clearly need less fertilizer and chemical pesticides than replacement cultures. In addition, they have positive effects on the agricultural eco-systems' diversity and landscape. In this context, growing these fibers offers a welcome 'environmental pause' in order to maintain soil quality, preserve landscapes and encourage bio-diversity. »*



European Parliament



All the signatory producers of the European Flax® Charter are reducing the ecological footprint of European Flax



**A CARBON SINK** \_ in European agriculture : 250,000 tonnes of CO<sub>2</sub> stored

**ZERO WASTE** \_ everything is used or transformed !

**ZERO IRRIGATION**

**ZERO WASTE and NO POLLUTION** \_ of neither soils nor water  
342,000 tonnes of greenhouse gas emissions spared each year in Europe  
38,000 tonnes of the equivalent in oil saved each year  
300 tonnes of phytosanitary products saved each year

**ROTATED CROP** \_ which regenerates the soil for the next crop

**BIO-DEGRADABLE**



- \* Based on the 90,000 hectares of flax and hemp under cultivation in the E.U
- \* Sources : European Commission Audit, Report of the Commission to the European Council and Parliament, Bruxelles, 2008 / Eco-profile of a linen shirt, by Bio Intelligence Service for CELC, 2007
- \* Calculations based on average harvests 2004/2011 in FR, BE & NL – Sources C.I.P.A.LIN (FR), A.B.V (BE), C.V (NL).

# Flax, a low-energy fibre

**Studies clearly show that for all environmental impact indicators, flax fibres score much better than other fibres, reducing for example the energy consumed to produce 1 KG of fibre.**

Fibres	Flax/Linen	Cotton	Wool	Viscose	Polypropylene	Polyester	Acrylic	Nylon
Energy in MJ/kg of fibre	10	55	63	100	115	125	175	250

Source : « Composites Design and Manufacture (Plymouth University teaching support materials)  
Natural Fibres - environmental, technical and economic issues. »



# Flax, a low-water fibre

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



**save**

**Buy a linen shirt**  
**= save 13 bottles of water**  
**= 19.5 litres**  
**= 5.15 gallons**



water used for cultivation, manufacturing, use, care and end-of-life

# Flax, a fibre that respects aquatic ecosystems

**The growing of flax** requires very few inputs (e.g. fertilisers) and no defoliant: it **aids in the preservation of aquatic ecosystems.**





# 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 CO<sub>2</sub> equivalent to the CO<sub>2</sub> emissions generated by :

Renault Clio car driving around the world 62 000 times

... or driving 3 231 round-trips from Shanghai to the Moon !



# THE REMARKABLE QUALITIES OF FLAX/LINEN FIBRE







# The Flax/Linen fibre offers the best ventilation and is the most breathable

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Linen provides the best flow of air and vapour through the textile, between skin and the surrounding environment.



# The Flax/Linen fibre shows exceptional absorbency and moisture management

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Linen has a remarkable ability to absorb and evaporate water quickly, for optimal comfort and performance.





# Flax/Linen is the thermoregulating fibre of choice

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Breathable in summer and insulating in winter, linen regulates the body's temperature and can be worn in all seasons.

Source: Linen study on Comfort Performance by Cetelor Laboratory - Université de Lorraine, 2014



# Flax/Linen, the healthy fibre for well-being

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Linen textiles are indicated for sensitive skin. They are hypoallergenic, have beneficial effect on skin conditions and do not support bacterial growth.

They promote relaxation and sleep.

Tolerance and benefits of linen cloth for preventing and treating dermatological disorders -  
Università degli Studi di Milano - Istituto di Clinica Dermosifilopatica II – Dr M. Polenghi, Pr A. Finzi, 1985  
The functional properties of Tencel® - A current update - Heinrich Firgo, K. Christian Schuster,  
Friedrich Suchomel, Johann Männer, Tom Burrow, Mohammad Abu-Rous, 2006



# The Flax/Linen fibre is hypoallergenic and safe

Linen textiles are very well tolerated, even by sensitive skins.

Dermatological 'patch test' experiments conducted on subjects with or without a history of skin allergies have shown no allergic reaction after flax/linen textile application.

They also have a beneficial effect on the healing of certain dermatological disorders, thanks to its thermoregulating and moisture wicking properties.

They do not promote the growth of bacteria:  
laboratory-tested in the presence of bacteria,  
cellulosic fibres obtained significantly  
better results than synthetic fibres.

Sources: Tolerance and benefits of linen cloth for preventing and treating dermatological disorders  
Università degli Studi di Milano - Istituto di Clinica Dermosifilopatica II – Dr M. Polenghi, Pr A. Finzi, 1985  
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# Linen promotes relaxation and sleep

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*« Able to absorb and evaporate water quickly, linen keeps the skin dry and thus promotes sleep. Linen, as a non-allergenic fibre prevents any discomfort; its softness helps the feeling of wellbeing, a pre-condition for sleep. »*

***Professeur Luca Imeri,  
Centre for Sleep research,  
University of Milan***





# Linen takes color very well

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Linen is capable of obtaining deep and intense ranges of colour: thanks to its exceptional absorption capacity, it is suitable for dyeing in an infinite number of shades.



# Linen is hard wearing and easy to look after

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The Flax/Linen fibre is the most resistant of natural fibres.

**It is long lasting and pills very little, thanks to the length of the fibre.**



# Linen is hard wearing and easy to look after

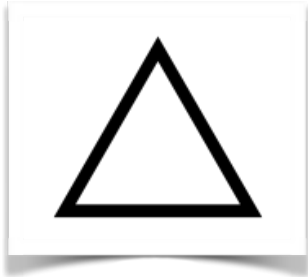


## WASHING

Linen is easy to take care of, it can be washed at a high temperature, and it becomes more supple and soft with repeat washing. It stands up well to spinning and machine drying, is easy to iron or, in the case of washed linen, linen knits and linen towelling, doesn't need to be ironed at all.

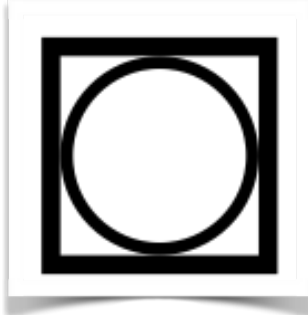
In general, white linen can be washed up to 95°C and colour from 40°C to 60°C, on a normal programme. Follow the instructions on the care label which take into account the different parameters: the type of weave and knit, dyeing, finish, accessories, embroideries, etc. For example, fine linen jersey knits should be machine washed, on a delicate cycle.

# Linen is hard wearing and easy to look after



## **WHITENING**

Choose detergents and whitening products with a base of oxygenated agents. Avoid products with a chlorine base (bleach...) which could have a yellowing effect on linens if not rinsed immediately.

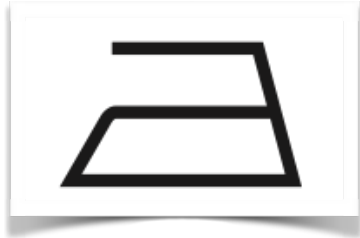


## **TUMBLE DRYING**

After a moderate spin, linen can be dried in different ways: hanging, flat (for knits), in the tumble dryer (see label).

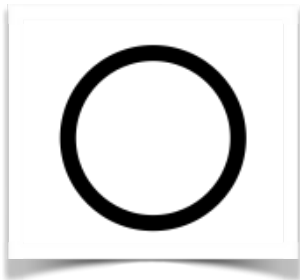


# Linen is hard wearing and easy to look after



## IRONING

The new generations of linen knits and washed linen don't need ironing. For other cases ironing linen that's still damp, with or without steam, is easy and gives an excellent result. Ironing should preferably be done on the reverse side. The temperature of the iron should be chosen based on the fabric's weight and composition. Pure linen can be ironed at a very high temperature. Experiment first on a corner of the fabric as a too-hot iron can make dark colours turn shiny.



## PROFESSIONAL CLEANING

Dry cleaning is sometimes recommended, depending on the garment's finish and its components (linings, buttons, etc.).

# THE REMARKABLE QUALITIES OF FLAX FIBRE APPLIED TO COMPOSITES







# LIGHTNESS

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Due to the low density of flax fibre compared to glass fibre (-40%), composite materials that integrate Flax reinforcements have shown themselves to be performant for all kinds of applications in which lightness is a determining element.

# THE CERTIFICATIONS OF TRACEABILITY FOR FLAX/LINEN







## EUROPEAN FLAX \_ *premium quality* *European Flax for all uses*

EUROPEAN FLAX<sup>®</sup> is the qualitative standard of European Flax fibre for all uses -fashion, lifestyle, home and composites- promoting origin, know-how and innovation.

The EUROPEAN FLAX<sup>®</sup> Charter, signed by all the Flax producers, guarantees local farming that respects the environment: **ZERO IRRIGATION, GMO-FREE, ZERO WASTE.**

The EUROPEAN FLAX<sup>®</sup> label audited by Bureau Veritas Certification certifies traceability at each step of the processing, right through to the finished product, and provides reassurance to a demanding consumer.



MASTERS OF LINEN® the guarantee of linen traceability, 100% Made in Europe from European Flax® fibre, to yarn to fabric.

The European agro-industry of Flax & Linen is a remarkable combination of sustainable cultivation and manufacturing excellence, from field to 100% Made in Europe transformation: spinning, weaving and knitting.

A club of companies which preserves and enhances **Quality, Creativity and Local production**; a laboratory of ideas and innovation.

FLAX/LINEN, THE HOLISTIC  
EXPERIENCE :  
*...AND A SENSE OF HUMANITY*





# FLAX/LINEN, THE HOLISTIC EXPERIENCE : ... AND A SENSE OF HUMANITY

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- **36000 years BC**

Flax is the first textile produced by man : discovered in a cave in Caucasia, at a time when humanity used bone tools.



# FLAX/LINEN, THE HOLISTIC EXPERIENCE : ... AND A SENSE OF HUMANITY

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**3 000 years BC**

The Phoenicians export linen to Scotland, Persia, India and China.



# Thomas Ferguson Established 1854

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**1810**

Philippe de Girard develops  
in France the flax spinning  
machine : the start of the  
industrial revolution

**1854**

Thomas Ferguson Irish  
Linen Weavers and  
manufacturers  
established

**1964**

John England Irish Linen  
established







John**England**



IRISH LINEN PROPERTIES

**Franklins**

A close-up, slightly blurred photograph of a lush green field filled with numerous small, delicate white flowers. The flowers are scattered throughout the frame, creating a textured, speckled appearance against the vibrant green grass. The lighting is soft and even, highlighting the natural beauty of the scene.

THANK YOU