

PRODUCT DATA SHEET

Fibre flax

Botanical name	Linum usitatissimum (for fiber production especially: Linum usitatissimum L. ssp. usitatissimum conv. usitatissimum)
Seeding rate	130-150 kg/ha
Distance between rows	7-10 cm
Sowing period	Late March to early April
Sowing depth	2-3 cm



General information and usage

- ▶ Other names: Flax, common flax, linseed
- ▶ Can be used in a wide range of applications
 - Long flax fibres:
 - ♦ Highest-quality long flax fibres for clothing fabrics
 - ♦ Poorer grades for furniture upholstery and other household textiles, as well as for sacks or tarpaulins
 - Short flax fibres:
 - ♦ Pulp industry
- ▶ Industrial fibres for technical applications (automotive industry)
- ▶ Linseed oil can be used in the paint industry
- ▶ Flax fibre as an alternative to glass fibre

Botany

- ▶ Family: Flax family (Linaceae)
- ▶ Genus: Flax (Linum)
- ▶ Origin: Asia, North Africa

Morphology

- ▶ Annual, upright and herbaceous plant growing to heights of 80-120 cm
- ▶ Forms a taproot with numerous delicate lateral roots
- ▶ Stem diameter approx. 2 mm
- ▶ Long-fibre flax forms only one long, fine stalk, while linseed is characterised by more pronounced branching
- ▶ Inflorescence is a panicle-like, loosely hanging raceme of five-petaled flowers with a flowering period of about 2 weeks
 - Possible basic colours of the 5 petals: blue, white, violet, pink
- ▶ Flower consisting of 5 sepals and 5 staggered petals
- ▶ The fruit is a 5-compartment capsule with 2 seeds per compartment
- ▶ Self-pollinator

Climate requirements

- ▶ Long-day plant, Western European climate is optimal
- ▶ Growing season from sowing to harvest: 100-120 days, sum of active temperatures is 1600-1800°C
- ▶ Germination temperatures of 2-3°C and frost-tolerant from -3 to -5°C
- ▶ Precipitation: 500-700 mm/year
 - About 120 mm of precipitation should be guaranteed in the main May/June growing period
- ▶ Warm, dry conditions are beneficial during the ripening phase

Soil requirements

- ▶ Humus-rich soil with high water holding capacity, good structure and low risk of capping (loess-loam, sandy loam soils) are ideal
- ▶ Uncompacted soils free from waterlogging are preferred
- ▶ Pure sand and clay soils are disadvantageous
- ▶ Optimal pH value: 5.5 to 7.0



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Crop rotation

- ▶ Observe crop rotation breaks of 6 years
- ▶ Good preceding crops for fibre flax (e.g. cereals and maize) leave only small nitrogen reserves
 - Required for high fibre quality, excessive post-harvest N levels result in the fibre being too soft
 - Possible previous crops are sugar beets and potatoes
- ▶ Not suitable as preceding crop are legumes (N-surplus), rape (Phoma) and sunflowers (Alternaria)

Soil preparation

- ▶ The aim is to have a well-distributed, even, finely crumbled and weed-free seedbed:

Objective	New cultivation
Measures	Basic soil preparation (primary preparation) clear by ploughing on heavy soils, a cultivator can also be used on lighter sites. Secondary processing using a mill or rotary harrow for a fine, well-distributed seedbed.

Sowing

- ▶ Target density: 2,000 plants/m²
- ▶ Seedlings can tolerate frost to -5°C

Crop protection

- ▶ Flax has very little weed suppression during initial development
- ▶ If there is significant weed pressure, only approved plant protection products for fibre flax cultivation may be used
 - Dicotyledonous weeds: herbicide with active ingredient mesotrione pre-emergence and with bentazone and bromoxynil post-emergence
 - Monocotyledonous weeds: herbicide with the active ingredient fluazifop-butyl post-emergence
- ▶ Fusariosis is the most important disease in Central European fibre flax cultivation
 - Extensive, properly designed and diverse crop rotation is an effective measure against fungal diseases
 - Seed dressing with the approved preparations
- ▶ Control harmful insects such as flea beetle and flax thrips with approved contact insecticides based on the active ingredient cyhalothrin



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Fertilisation

- ▶ Based on soil testing (comply with the fertiliser regulations!)
- ▶ No N fertilisation on fertile soils (otherwise there is a risk that the fibres will be too soft)
- ▶ Only in case of acute need cautious nitrogen application with max. 20-50 kg/ha and partial application
- ▶ Fiber flax with high sulfur requirements: about 20 kg S/ha at Smin values < 30 kg Smin/ha

Nutrient removal per year in kg/ha for approx. 8,000 kg/ha harvest of retted straw:

	Total N	P ₂ O ₅	K ₂ O	MgO
Total	75	45	120	105

Harvest and treatment

- ▶ Harvest time
 - For textiles: yellow ripeness (²/₅ defoliation, ²/₃ yellow stems, yellow capsules)
 - Technical applications: a little later
 - Likely late July (in Central Europe)
- ▶ Yield from retted straw: approx. 8,000 kg/ha
 - Long textile fibres 17-25%
 - Short fibres 3-13%
 - Shives (woody components) 35-50%
- ▶ Harvesting for textile and technical applications is done with a rack, then the straw is turned with special machines (dew retting), the roasting process proceeds steadily, dew retting takes 3-6 weeks
- ▶ Retting straw moisture of 13% is optimal for storage
- ▶ Seeds are gathered with a combine harvester
 - Later harvesting of seeds → better seed quality, but fibre quality decreases
 - Advantage: seeds are separated from the straw → Speeds up the drying process of the straw
 - Disadvantage: severe wear of the combine harvester blades, yield losses up to 20% compared to using a hay rack



Any questions? Please feel free to contact us!

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