PRODUCT DATA SHEET

Oilseed flax

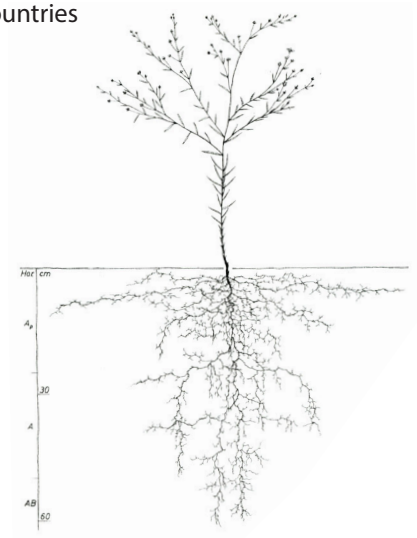
Botanical name	Linum usitatissimum L. (main variety for oilseed production: Linum usitatissimum L. ssp. usitatissimum convar. Mediterraneum)
Sowing rate	Summer flax as a main crop: 450-550 seeds/m²; winter flax as a main crop: 350-400 seeds/m²; as a catch crop: 55-60 kg/ha
Distance between rows	12.5-20 cm
Sowing period	Summer flax as a main crop: late March to early April; winter flax as a main crop: September; as a catch crop: from late June onwards
Sowing depth	2-3 cm

General information and usage

- Can be used in a wide range of applications:
  - Grain production
    - Oil production (e.g. as an edible oil, medicinal use, applications in the paint and coatings industry)
    - Edible seeds (as an ingredient in baked goods)
    - Animal feed (both flaxseed and the protein-rich pressing residues from oil extraction)
  - Fibre utilisation (especially in the textile industry)
    - In this application, the most common flax variety is Linum usitatissimum ssp. usitatissimum convar. usitatissimum
  - Catch crops, underseeding and companion planting
    - Can be planted on its own or in mixtures
  - Flowering and greening mixtures

Botanical information

- Family: Flax family (Linaceae)
- Genus: Flax (Linum)
- Origin: Asia, North Africa
- Most important cultivation regions: India, Canada, China, European countries



Morphology

- Annual herbaceous plant that grows to a height of 20-70 cm
- Develops a fusiform taproot with fine lateral roots; vulnerable to soil compaction
- Stem diameter around 2-3 mm
- Lower plant has a single stem, branching out to several from the middle
  - Winter flax varieties have strong tillering, dense stands and high stem lengths
  - Winter flax offers high competitive vigour against weeds
  - Winter flax has a higher tendency to lodging than summer flax varieties
- Leaves are narrow, around 20-40 mm long and 3 mm wide, no petiole
- Inflorescence is a panicle-like, loosely hanging raceme of 5-petalled flowers with a flowering period of about 2 weeks
- The base colour of flowers can be blue, pink, purple or white
- Flowers consist of 5 sepals and 5 petals with offset positions relative to the sepals
- The fruit is a 5-compartment capsule with 2 seeds per compartment
- Self-pollinator

PRODUCT DATA SHEET

Varieties and seeds

- Small catalogue of varieties, with 7 authorised summer oilseed flax varieties in Germany
- Flax is divided into brown- and yellow-seed varieties
- TGW: 7-11 g
- Germination capacity: 85%

Climate requirements

- Undemanding long-day plant
- Suitable for planting on maritime-moderate sites as well as dry and warm ones
- Generally high drought and heat tolerance
- Growing season from sowing to harvest: 110-150 days, the sum of active temperatures is 1600-1800°C
- Germination temperature of 5°C
- Frost tolerance to -5°C
- Precipitation: 500-700 mm/year
  - During the capsule formation phase (around 80-100 days after sowing) oilseed flax is very sensitive to water scarcity
- Warm, dry conditions are beneficial during the ripening phase

Soil requirements

- Oilseed flax does not place high demands on the soil
- Humus-rich soils with high water holding capacity, good structure and low risk of capping (loess-loam, sandy loam soils) are ideal
- Soils with no compaction and waterlogging
- The optimal pH value is 5.5-7.0

Crop rotation

- Observe crop rotation breaks of 6 years
- Cereals and maize are good preceding crops, as they leave only small nitrogen reserves
- Sugar beets and potatoes are also potential preceding crops
- Poor choices for preceding crops include legumes (excess N), rapeseed (Phoma) and sunflowers (Alternaria)

PRODUCT DATA SHEET

Soil preparation

- The aim is to have a well-distributed, uniformly flat and crumbled seedbed free of weeds:

Objective	New cultivation
Measures	**Primary soil preparation** on heavy soils, clear by ploughing; in areas with light soil, a cultivator can also be used. **Secondary processing:** Use a mill or rotary harrow for a fine, well-distributed seedbed.

Sowing

- Target density: 400-600 plants/m^2
- Seedlings can tolerate frost to -5°C

Crop protection

- Oilseed flax has very little weed suppression during initial development
- In the event of weed pressure above the damage threshold, approved plant protection products for oilseed 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
  - Tined weeders can be used post-emergence, especially suitable with ample row spacing
- Fusariosis (Fusarium oxysporum) is the most important disease in Central European oilseed 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

PRODUCT DATA SHEET

Fertilisation

- Based on soil testing (comply with the fertiliser regulations!)
- No N fertilisation on fertile soils
  - Cautious N application may only be carried out to a maximum of 20-50 kg/ha and partial application in case of acute need
- Oilseed flax has high sulphur requirements: around 20 kg S/ha if Smin < 30 kg Smin/ha
- Winter flax is generally fertilised at the start of the growing season in the spring; no fertiliser needed before winter
- Organic fertilisation is not recommended for oilseed flax (crust formation, unexpected mineralisation spikes)

Nutrient removal per year in kg/ha for approx. 2,500 kg/ha grain + straw yield:

	Total N	P_2O_5	K_2O	MgO
Total	90	40	75	20

Harvest and treatment

- Likely harvest period: mid-August to mid-September
  - Optimal harvest time: Capsules brown, seeds give off a metallic sound in the capsule when moved, stems yellowish to brown
  - If the capsules ripen unevenly, dessication of the stand can be considered
- It is recommended to begin the harvest at a seed moisture of < 15%
- Seeds can be threshed using a conventional thresher
- Seed yields fluctuate: around 1,000-3,000 kg/ha
  - Oil content: approx. 40-50%
- It is recommended to dry to 9%

Any questions? Please feel free to contact us!
+49 2151 - 44 17 0
info@freudenberger.net