

# PRODUCT DATA SHEET

## Yellow and white sweet clover

<b>Botanical name</b>	Melilotus officinalis & Melilotus albus
<b>Seed rate</b>	When used for green manure: 25 kg/ha pure sown, 16 kg/ha when undersowing When used for biogas: 10 kg/ha in mixtures When used for bee pastures & honey: 10 kg/ha in mixtures
<b>Distance between rows</b>	Similar to cereals
<b>Sowing period</b>	For pure sowing: March to May, for undersowing: February to March When grown for green manure: mid-July to August When used for biogas: April to May When used for bee pastures & honey: from mid-April to May, autumn sowing possible until mid-August
<b>Sowing depth</b>	Mixtures: mostly superficial (with rolling!); pure sown: 1-2 cm in better soils & 2-3 cm in sandy soils



### General information and usage

- ▶ Other names: yellow & white Bokhara clover, "the alfalfa of sandy soils"
- ▶ Can be pure sown or cultivated in mixtures
- ▶ The species has both annual and perennial types
- ▶ Most important uses:
  - As a component in annual or perennial biogas mixtures, for example MehrGras BG 70, 80 & 90
  - As a valuable annual or perennial component in flowering mixtures for insect protection & honey, for example melliferous plants for brownfields

### Botany

- ▶ Family: Leguminosae (legumes)
- ▶ Genus: Melilotus
- ▶ Origin: Central Asia, Southeast Europe

### Morphology

- ▶ Annual or biennial, overwintering, herbaceous plant growing to heights of up to 2.5 m
- ▶ Forms a branched taproot
- ▶ Stem is coarser and thicker than alfalfa/lucerne, upright growing, robust, with several side shoots that are comparatively less leafy; leaves are trifoliolate, obovate, typically toothed on the edge, the middle leaf is stalked

- ▶ Inflorescence is a raceme 4-10 cm long with 40-80 flowers, yellow or white in colour, depending on the species
  - The seeds of white and yellow sweet clover cannot always be told apart; in some cases, white sweet clover can also produce yellow flowers
- ▶ Needs cross-pollination by insects
- ▶ Comments:
  - Yellow sweet clover (*Melilotus officinalis*): always biennial
  - White sweet clover (*Melilotus albus*): annual and biennial types exist; the main distinguishing feature is the blooming behaviour
    - ♦ Biennial types: no or very few flowers in the first year, full bloom only in the second year of growth
    - ♦ Annual types: less pronounced root system, no formation of crown buds, longer internode of the seedlings, more lignification of the stems in autumn, full bloom occurs in the first year of growth



# PRODUCT DATA SHEET

## DID YOU KNOW?

### SWEET CLOVER – A PARADISE FOR INSECTS

- In addition to phacelia, sweet clover is also an excellent melliferous plant
- In addition to the genus name Melilotus, which loosely translated means “honey plant”, historical common names such as “honey clover” underline its high value as a plant that bees feed from
- Honey yield is 100-300 kg/ha depending on the plant density
- Around 30 wild bee species, as well as wasps, houseflies, butterflies and some beetles visit Melilotus fields
- Note: biennial types flower mainly in the second year

#### Varieties and seeds

- No varieties available in Germany
- Sweet clover has not been widely cultivated to date
  - It still has many characteristics of wild plants
  - So far, no information on the growth habit has been obtained from the seed trade

#### Climate requirements

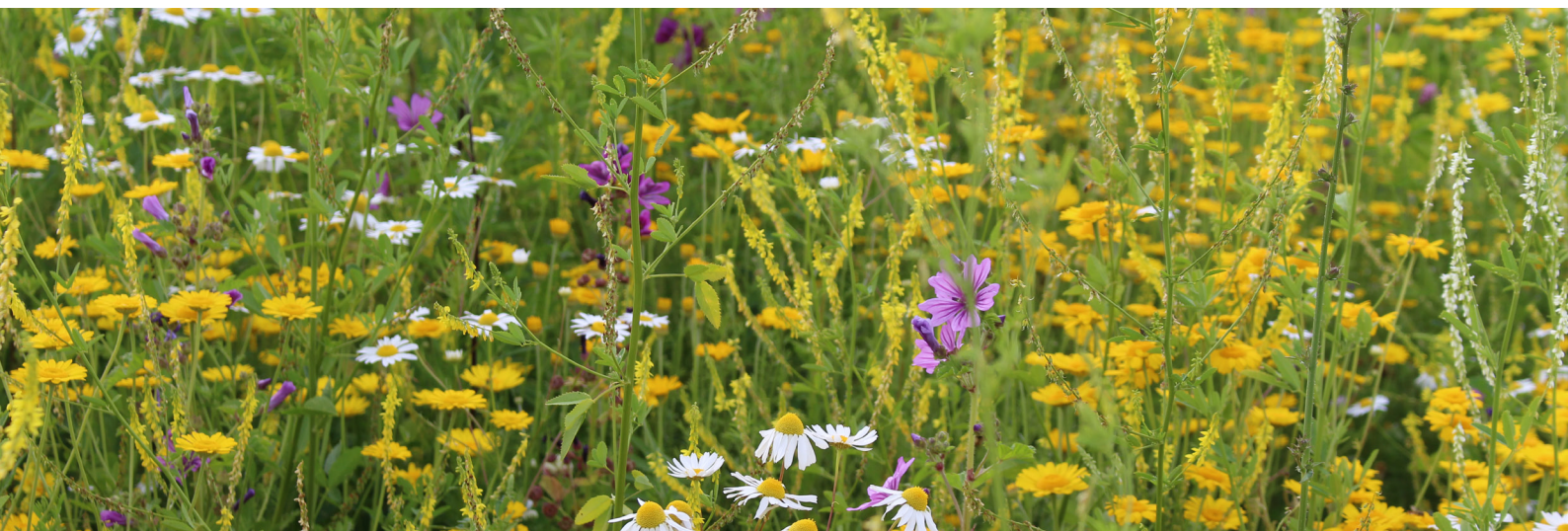
- Very undemanding and adaptable species
- Known for its high resistance to winter and drought
  - Winter hardiness down to -30°C if sufficient root buds have been established (therefore no crop pruning on biennial crops between August and October → formation of root buds)

#### Soil requirements

- Limy, drier and, especially, sunny locations are preferred
- Also well suited for moist, shallow, sandy locations
- Soils that are too acidic and soils prone to flooding are not suitable
- A soil pH value of > 5.8 is recommended

#### Crop rotation

- Maintain cultivation breaks of 3-4 years
- Considered a pioneer plant
- Irreplaceable in the recuperation of problem sites, after deforestation, wasteland rehabilitation



# PRODUCT DATA SHEET

## Soil preparation

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

Objective	New cultivation
Measures	<b>Basic soil preparation (primary preparation):</b> in heavy soils, clear by ploughing; in areas with light soil, a cultivator can also be used. <b>Secondary processing:</b> use a tiller or rotary harrow for an evenly crumbled, well-distributed seedbed.

## Sowing

- Emergence is generally 10-15 days after sowing
- Seedlings can tolerate frost from -5 to 6°C
- Before sowing, it is advisable to inoculate the seed with a suitable inoculant\*

\* suitable inoculant for sweet clover is RhizoFix® RF-50

## Crop protection

- Sweet clover usually has very good weed suppression
- In the case of massive weed pressure, the use of herbicides before sowing should be considered (avoid soil herbicides because clover species are very sensitive to residues)
- Mechanical weed control:
  - With harrows
  - With cereal cultivators (in this case, the row spacing must be adjusted to 16-24 cm)
- Topping (at a growth height of 12 cm) is an effective measure against weeds
- Diseases and pests are rare, only mildew has been observed



# PRODUCT DATA SHEET

## Fertilisation

- ▶ Based on soil testing (comply with the fertiliser regulations!)

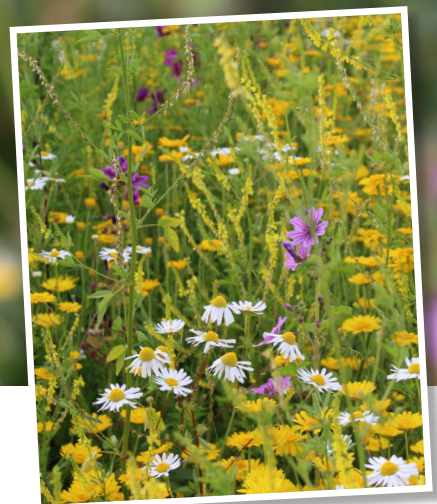
Annual nutrient losses in kg/ha:

	Total N	P <sub>2</sub> O <sub>5</sub>	K <sub>2</sub> O	MgO
Total	-	60	90	15-20

- ▶ If planning to use mineral fertiliser: perform prior to sowing, since young plants are very sensitive to elevated salt levels in the soil
  - The type of sulphate should be chosen carefully, especially when using potash fertiliser, since young plants are particularly sensitive to chloride

## Harvest and treatment

- ▶ As a main crop: approx. 20,000-30,000 kg/ha (aboveground) wet mass and approx. 8,000 kg/ha dry mass
- ▶ As catch crop: approx. 3,000-4,000 kg/ha DM
- ▶ As a biogas mixture: e.g. MehrGras BG 70 approx. 10,000-15,000 kg/ha DM
- ▶ Harvest period for biogas mixtures:
  - MehrGras BG 70: 1st year October, from the 2nd year August
  - MehrGras BG 80: September-October
  - MehrGras BG 90: August
- ▶ For use in biogas, harvested mass must be silaged (DM 25-35%)
  - The best results are achieved together with carbohydrate-rich energy crops such as maize



**Any questions?** Please feel free to contact us!

☎ +49 2151 - 44 17 0

✉ info@freudenberger.net