

PRODUCT DATA SHEET

Borage

Botanical name	Borago officinalis
Seeding rate	pure sowing 11-17 kg/ha; as component in a mixture, the sowing rate should be based on that of the selected mixture
Distance between rows	when cultivated for seeds 25-50 cm
Sowing period	when cultivated for seeds April to July
Sowing depth	3-5 cm (seeds require darkness for germination!)



General information and usage

- ▶ German names: Borretsch, Gurkenkraut, Borgelkraut, Burisblüte, Himmelstern, Augenzier
- ▶ English names: Borage, talewort, starflower, cool tankard, tailwort

Not only is borage grown as a flowering and greening plant, it is also a particularly useful medicinal plant and culinary herb. It can be cultivated on its own or in mixtures.

Borage as a medicinal plant

The pharmaceutical effect of borage is primarily derived from the oil content (mainly linolenic acid) present in the seeds. Apart from that, freshly pressed juice from the leaves and flowers has an anti-inflammatory effect. The different oil fractions are also used in various skin cosmetics.

Borage as a culinary herb

Borage has a cucumber-like taste, which is why it is often used as seasoning in salads and gravies. Its azure, star-shaped flowers are also edible and used as a garnish or organic food colouring. The seeds are used to extract borage seed oil, also called oleum boraginis.

Borage in flowering and greening mixtures

Borage is present as a component in the following mixtures:

Flowering mixtures:

- ▶ TERRA GOLD® 4 Bees feast – Tübinger mixture for bees
- ▶ Brandenburg bee pasture mixture
- ▶ Organic Brandenburg bee pasture mixture

Vineyard greening:

- ▶ Organic ProGreen® WB 215 WOLFF mixture
- ▶ ProGreen® WB 220
- ▶ ProGreen® WB 240

Gameland seed mixtures:

- ▶ ProGreen® WA 30 Gameland Trio
- ▶ ProGreen® WA 70 Habitat I

Botanical information

- ▶ Family: Borage (Boraginaceae)
- ▶ Genus: Borage (Borago)
- ▶ Origin: Southeastern Europe, Asia Minor
- ▶ Now found across Europe as far as Scandinavia and even North America



PRODUCT DATA SHEET

Morphology

- Annual plant emerging from a leaf rosette, with thick, succulent and hollow stalk
- Characterised by bristles and hairs all over the leaves
- Leaf morphology: Except the sessile rosette leaves, all leaves are short-stemmed, ovoid, 3-10 cm long and 2-5 cm wide, entire or slightly lobed on the edges
- Flower morphology: Leafy corymb with azure (rarely also white) star-shaped flowers; colour changes to purple during the flowering period
- Propagation: Self-fertilisation rare but possible; cross-fertilisation by flower-visiting insects is more common
- Excellent melliferous plant
- Fruit morphology: Schizocarp fruit with four nut-like mericarps

Varieties and seeds

- Only commercial seeds used so far, no approved varieties available
- Germination rate across multiple batches: approximately 90%
- TGW: 20 g

Climate requirements

- Less demanding; thrives in almost all climatic conditions in subtropical regions and temperate zones
- Borage does well in areas with sufficient water supply
- Glandular, bristle-like hairs on the leaves effectively protect against evaporation → Good drought tolerance

Soil requirements

- Does comparatively well on many soils
- Thrives particularly well on calcareous, loamy-sandy soils that are rich in nutrients and have a pH of 6.5-7.5

Crop rotation

- Cultivation interval of 4 years is recommended when grown as pure crop
- Otherwise, no special crop rotation requirements
- Good preceding crops include cereals and, among medicinal and spice plants, chervil and dill
- Volunteers may occur in the following crop → Borage seeds shed easily!



PRODUCT DATA SHEET

Soil preparation

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

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

Sowing

- ▶ Optimum stand density: 12-16 plants/m²
- ▶ Emergence generally occurs about 10-14 days after sowing

Crop protection

- ▶ Fields with less weed pressure should be sought for new planting
- ▶ Mechanical weed control is often sufficient
- ▶ Herbicide application should be considered only in acute circumstances (use only currently approved herbicides!)
- ▶ Main pests: Butterfly larvae (Lepidoptera) and painted lady butterfly (*Pyrameis cardui*)
 - Insecticide application is tricky because many substances are harmful to bees
- ▶ Common diseases: Ramularia leaf spots (*Ramularia* spp.), rust, blight, powdery and downy mildew
 - No approved fungicides in Germany
- ▶ Well-designed, varied and diverse crop rotation is an effective measure against fungal diseases
- ▶ As a rule, adding borage in mixtures excludes the need to use any pesticides



PRODUCT DATA SHEET

Fertilisation

- Based on soil testing (comply with fertiliser regulations!)
Nutrient removal per year in kg/ha given 700 dt/ha WM yield:

	Total N	P ₂ O ₅	K ₂ O	MgO
Total	110	35	305	10

- Moderate fertilisation is generally sufficient

Harvest and treatment

- Due to the uneven ripening it is extremely difficult to set an optimal harvest period
- When sown in April, the harvest time frame often extends from mid to late August
- It is recommended to start with the harvesting when about 20% of the seeds have shed
- The plants are windrowed for 5-7 days before threshing
 - Seeds undergo after-ripening, the husk becomes dark
 - Residual moisture varies between 9% and 30%
- Seeds can be threshed using a common thresher
- High yield uncertainty
 - Variable grain yields, between 2-10 dt/ha
- Drying until residual moisture is approx. 9-12% is recommended



Any questions? Please feel free to contact us!

☎ +49 2151 - 44 17 0

✉ info@freudenberger.net