

PRODUCT DATA SHEET

Hairy vetch & Hungarian vetch

Botanical names	Vicia villosa & Vicia pannonica
Seeding rate	as a main crop 70-80 kg/ha; as a catch crop 120-160 kg/ha
Distance between rows	similar to cereals
Sowing period	before April when sown as a main crop; before October when sown as a catch crop
Sowing depth	4-6 cm
Germination temperature	from soil temperatures of 10°C



Summary of key characteristics:

Hairy vetch and Hungarian vetch are very similar morphologically as well as in terms of their agronomic qualities. Overall, however, Hungarian vetch is more drought-tolerant and winter-hardy. This makes Hungarian vetch particularly well-suited to areas with a continental climate. Both species perform extremely well as green manure crops:

- Deep root penetration with a dense root network
- Improve soil structure

Hairy vetch = winter vetch	Hungarian vetch
Vicia villosa	Vicia pannonica

Botanical information

- Family: Fabaceae (legumes)
- Genus: Vicia (from the Latin vincere = entwine, conquer → creeping growth form)
- Origin:

Hairy vetch	Hungarian vetch
<ul style="list-style-type: none"> ▸ Southeastern Europe, first introduced into Germany as a weed in cereal crops ▸ Has now spread extensively to the Canary Islands, North Africa and Central Asia 	<ul style="list-style-type: none"> ▸ Southern Europe, North Africa and the Near East ▸ In the German-speaking region, only native to the areas of Austria in the Pannonian Basin ▸ Has now spread throughout Europe, reaching from Algeria to the Caucasus

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Morphology

Hairy vetch	Hungarian vetch
<ul style="list-style-type: none"> ▸ Annual to biennial, winter annual, diploid ($2n = 14$) and herbaceous plant that grows to a height of 1.5 m ▸ Stem and leaves are densely hairy ▸ Leaves contain 6-12 pairs of leaflets (25-30 mm long, 2-5 mm wide) ▸ The leaves have tendrils in the place of the terminal leaflet and the adjacent pair of leaflets ▸ Stipules are semi-sagittate, upper stipules usually lanceolate ▸ Inflorescence: Long racemes on axillary stalks with 20-30 bisexual flowers ▸ Flower colour: Blue-violet, rarely crimson or white ▸ Flowering period depends on the sowing period: <ul style="list-style-type: none"> ▪ June to late July for plants sown in April as a main crop ▪ When sown as a catch crop, after the beginning of spring growth from April to late May ▸ The fruit is a legume of 2-4 cm in length with 2-7 mostly round seeds 	<ul style="list-style-type: none"> ▸ Annual, winter annual, diploid ($2n = 12$) and herbaceous plant that grows to a height of 1.3 m ▸ Stem and leaves mostly smooth and densely hairy ▸ Leaves contain 7-9 pairs of leaflets (10-15 mm long, 2-5 mm wide) ▸ Advantage: Hungarian vetch less branched than hairy vetch → Ease of harvest ▸ The leaves have tendrils in the place of the terminal leaflet and the adjacent pair of leaflets ▸ Tendrils less prominent than in hairy vetch, frequently slightly branched at the end ▸ Stipules are small, ovate-lanceolate to semi-hastiform, sharp and narrow ▸ Inflorescence: Short, nodding papilionaceous bisexual flowers in a raceme ▸ Flower colour: Many, from yellowish-white to violet-brown ▸ Flowering period depends on the sowing period: <ul style="list-style-type: none"> ▪ June-August for plants sown in April as a main crop ▪ When sown as a catch crop, after the beginning of spring growth from April to late June ▸ The fruit is a legume of 2.5-3 cm in length with 2-8 mostly round seeds with a velvety texture

- Both species have similar root morphology
 - Powerful root clusters fill the upper soil horizons with fine roots, while a central taproot reliably penetrates through to deeper soil layers
 - Grows over compacted areas, opening up the soil
 - Fine roots penetrate into the smallest cracks in the soil, even reaching into stones
 - Due to its lengthy growing period, its root penetration is greater than common vetch (*Vicia sativa*)



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Varieties and seeds

- In terms of their use in agriculture, hairy vetch and Hungarian vetch are both less widely used than common vetch
- Landraces from the Iberian peninsula and Eastern Europe are often used as genetic material for new varieties
- In the case of hairy vetch, plant breeders tend to aim for sufficient winter hardiness, while rapid spring growth is sought after in all vetches

Hairy vetch	Hungarian vetch
▸ Currently only one approved variety in Germany, nearly 30 in the EU	▸ No approved varieties in Germany, 4 in the EU

Both vetch species have similar or identical requirements in terms of climate, soil and crop rotation. This means that they can be effectively substituted for one another or cultivated together.

Usage

- Can be sown pure or in mixtures
- Typically used in winter cover crop mixtures with rye and/or ryegrasses → Goal: The use of mixture partners that provide support for vetches helps to improve their stability and weed suppression
- Winter rapeseed, field mustard and cocksfoot are additional options in these mixtures
- Examples of mixtures in which hairy vetch or Hungarian vetch is a component:
 - MehrGras BG 100 vetch-rye mix (100-120 kg/ha in September or October, particularly recommended on lighter sites)
 - 85% winter rye and 15% hairy vetch or Hungarian vetch
 - MehrGras BG 105 vetch-rye-ryegrass mix (100-120 kg/ha in September or October)
 - 70% winter rye, 15% hairy vetch or Hungarian vetch, 15% Italian ryegrass
 - ProGreen® FU 7 Landsberger mixture (60 kg/ha as a catch crop, sowing in early August to mid-September, high fodder value)
 - 25% Italian ryegrass, 25% crimson clover, 50% hairy vetch
 - TERRA GOLD® 16 Winterfit (25 kg/ha as a winter-hardy catch crop mixture that tolerates late sowing and can reliably become established as late as mid-October) → 15% winter forage rapeseed, 5% field mustard, 15% crimson clover, 40% hairy vetch, 25% Italian ryegrass
 - In made-to-order mixtures, hairy vetch can be completely or partially switched for Hungarian vetch, and vice versa; Hungarian vetch enjoys slight advantages on sites with a continental climate



Hairy vetch in Landsberger mixture

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Climate requirements

- Moderate climate requirements; both species thrive on sites with a warm and wet autumn and dry spring
- Optimal germination temperature is 8-15°C; hairy vetch seedlings can tolerate frost up to -5°C, Hungarian vetch seedlings can tolerate frost at as low as -8 °C
- Both vetch species are winter-hardy
- Black frost without snowfall can lead to winterkilling in hairy vetch at temperatures below -10°C and in Hungarian vetch at temperatures below -15°C
- When an insulating snow layer is present, well-established stands of hairy vetch can tolerate freezing temperatures as low as -20°C; Hungarian vetch can tolerate temperatures as low as -25°C
- Drought tolerance is moderate in hairy vetch and higher in Hungarian vetch, especially after winter when plants can use the moisture left over from autumn and winter

Soil requirements

- Low soil requirements (lower than common vetch)
- They thrive on sandy soils, though cultivation on heavier soils is also possible
- Loose soils without standing water are advantageous
- Soil pH should be between 6.5-7.0
- Good soil phosphorous levels are ideal

Crop rotation

- Vetches cannot be grown in succession (cultivation breaks of 4-5 years are recommended)
- Vetches can be grown in nearly all crop rotations (except those involving legumes)
- Considerable yield improvements in potato and maize cultivation have been observed when vetch is grown as a prior crop

Soil preparation

- The objective is to have a weed-free, well-distributed, evenly crumbled seedbed

Objective	New sowing
Measures	Soil preparation (primary preparation) with plough for neat cultivation. Secondary processing using a mill or rotary harrow for a fine, well distributed seedbed.



Hungarian vetch

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Sowing

- Target density:
 - As a main crop: 180 plants/m²
 - As a catch crop: Up to 330 plants/m²
- Rule of thumb for sowing: Prioritise seedbed quality before sowing

Crop protection

Weeds

- Control:
 - Since both vetch species exhibit only moderate competitive ability during initial development when sown pure → sow in mixtures
 - Fast-growing components (e.g. Italian ryegrass) → effective weed suppression + optimal conditions for establishment
- Caution: Does not tolerate glyphosate in the prior crop (→ leads to insufficient germination in vetches)

Black spot disease

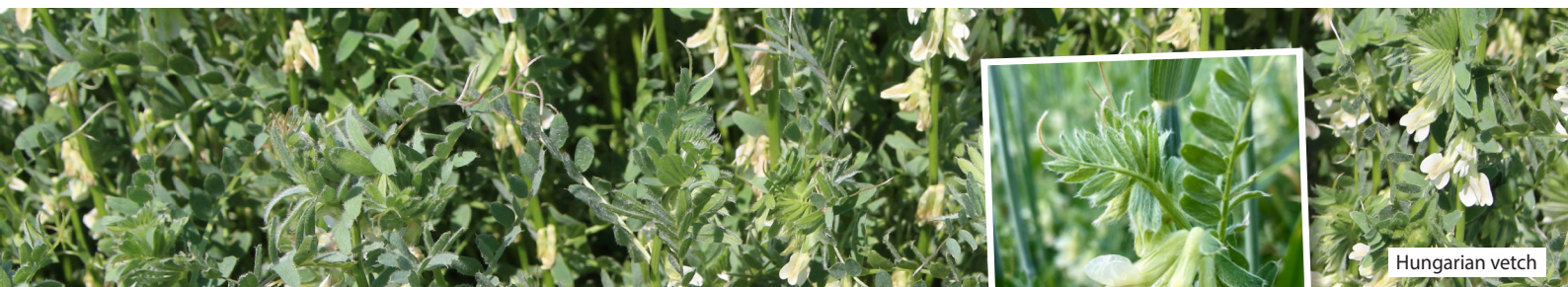
- Control: Lengthy crop rotation, maintain cultivation interval of 4-5 years (ideally more), use healthy seeds

Fertilisation

- N application is generally not required due to the presence of nitrogen-fixing rhizobia; hairy vetch can lead to savings of up to 150 kg N/ha

Harvest and treatment

- Harvest timing (depends on sowing date):
 - Earlier sowing: One cut in the autumn and one cut in spring possible
 - Later sowing: One cut in spring possible
 - After 1-2 cuts, hairy vetch and Hungarian vetch will be used up → Perennial plants, such as the Italian ryegrass in ProGreen® FU 7 Landsberger mixture, then go on to use the root channels made by the vetches
- Yield:
 - Pure stand: 2,000-3,000 kg DM/ha
 - Landsberger mixture: 3,000-4,000 kg DM/ha
- Caution: Seed dispersal by hairy vetch and Hungarian vetch should be avoided in rotations with winter cereals
 - Why? The seeds are similar in size to winter cereals (especially winter wheat) and will require cumbersome separation



Any questions? Please feel free to contact us!

☎ +49 2151 - 44 17 0

✉ info@freudenberger.net