Common vetch

Scientific name(s)

Vicia sativa

Strengths

- Common vetches are an annual pasture/forage/grain legume, extremely palatable at all growth stages, from early green shoots, as dry matter/hay or silage through to seedpods and seeds over summer.
- It has very high feed values for animals as green plants and dry matter as well as grain.
- Vetches have the ability to offer substantial improvements in soil fertility, structure and organic matter as well as offering a weed and disease break for cereals in a crop rotation.
- Vetch fixes atmospheric nitrogen in the soil; this is beneficial for subsequent cereal crops in both yield and quality.
- Growing vetch in crop rotations as a pasture or hay can be a very good strategy for controlling resistant grass weeds, because they will be grazed or cut before grasses have formed or set seeds and it provides a disease break from cereal diseases.
- For vetch planting, maintenance and harvesting, farmers can use the same machines that are used for cereal crops.
- Provides non-selective weed control options for reducing the risk of herbicide resistant weeds in cropping phases (eg grazing, green manuring, and hay production, spray-topping).
- Soft seeded species are suitable for use in all crop rotations, without the risk of voluntary plants creating a problem in following crops.

Limitations

- Not well adapted to waterlogging.
- In early growth stages vetches are sensitive to redlegged earth mite, and lucerne flea, and in mid to later growth to cowpea aphids as well to Native bud worm/Heliothis at flowering and podding stages.
- Post emergent herbicide options for broadleaf weed control are limited.

Plant description

Plant: annual, moderate stem strength and grows as small bushes. 40-80 cm high, with multiple lateral branches from near the base.

Stems: large climbing semi-prostrate with 9-16 internodes with multiple green to dark green leaves.

Leaves: concave, green, hairy on both sides. The central leaf stalk contains 4-8 pair of leaves with a tendril on the top.

Flowers: single or pair, medium (10-35mm); colour-violet/purple or white.

Pods: length-medium to long (40-70mm); with 6-8 seeds.

Seeds: medium to large (100seeds=6.5-8.9g); testa - brownish ornamentation; cotyledons colour: Morava & Languedock -beige; Rasina -greenish; Blanchefleur -red/orange; softness - Mor 99-100%; Ras 95-100%; BF and LNG 80-95%.

Pasture type and use

Common vetch varieties (CVV) have multipurpose end use options, as a pasture, hay/silage, and green manuring crops. Plant establishment after autumn rains is significantly faster than medics and clovers; reaching 6-10 nodes (10-15cm) in 6-8 weeks. CVV have some resistance to grazing, the other species are more susceptible. This species does not show an obvious

preference for particular soils. New vetch varieties are bred for Australian medium/low rainfall areas.

Vetches are potentially adapted to most areas of Australian farming land. Farmers perceive vetches as a reliable, versatile legume for pasture, green manure, hay/silage and grain. Vetches in crop rotations can be used to manage cereal diseases, grass weeds, improve soil fertility and contribute to increased yield and protein content in following crops.

Where it grows

Rainfall

Annual rainfall of 300-750 mm (growing season rainfall 200-350mm). Early flowering varieties (Ras & LNG) are suited to lower rainfall zones, and Mor and BF for higher rainfall zones. Adapted to and grown in most soil types and rainfall areas in southern Australia. Also in northern New South Wales and southern Queensland (mostly as a green manure).

Soils

Adapted to a range of soil types from sandy loams to clays of moderate fertility.
Prefers neutral to alkaline soils.

Temperature

Adapted to Mediterranean and Temperate Zones of southern Australia (10-35°C).

Establishment

Companion species

Can be grown in mixtures with annual ryegrass, volunteer cereals or sown cereals for grass/legume pasture or hay production, and with a range of summer growing grasses in the subtropics.

Sowing/planting rates as single species

For pastures, green manuring, hay/silage: 40-45kg/ha in areas with annual rainfall of <350mm/yr; and 50-60kg/ha in areas with annual rainfall >400mm/yr.

Sowing/planting rates in mixtures

For quality pastures or hay/silage use a mix of 2/3 vetch and 1/3 of rye grass or cereals (as a % of) the recommended rates for a particular area.

Sowing time

Mid April to end of June, depending on break of the season. Data from 10yr's of trials indicates that earlier seeding times produced better yields compared with later seeding. Sown at the same spacing as a cereals; 17-19cm between rows, at 4-6cm deep.

Inoculation

Commercial Group E.

Fertiliser

Triple Super - 50-75kg/ha at sowing time will generally provide a good start and growth, however many growers choose to sow without any fertilizer with good results.

Management

Maintenance fertliser

Generally common vetches are grown in rotation with cereals that regularly use a combination of fertilizers; this provides enough residual nutrients to maintain soil fertility for vetch growth. So no extra fertilizer applications during the growing season are required
Vetch has a strong root system that develops nodules at an early stage; this provides sufficient nitrogen for the plants to use and accumulates significant amounts for the following crops.

Grazing/cutting

Common vetch varieties have some resistance to grazing after 15 nodes (30cm high) till the start of flowering. Regrowth is dependant significantly on rain or available moisture after

grazing.
All current common vetch varieties are palatable for grazing and for hay.
Mor and Ras are resistant to rust and ascochyta and can be grazed at any time. But, LNG and BF are susceptible to rust and ascochyta, and if rust occurs in the crop DO NOT GRAZE that crop - rust can cause abortion in pregnant cows and sheep.
The nutritive and feeding values of vetch as a green plant and hay are very satisfactory for ruminants. Dry matter (DM), dry matter digestibility (DMD), crude protein (CP), acid detergent fibre (ADF) neutral detergent fibre (NDF) and water-soluble carbohydrate, are inferior to the green plant stage. As the plant matures, DMD, leafiness and CP decreases and NDF and ADF increase. Just before flowering the nutritive value of vetches is at its best.
For hay/silage the best time to cut vetches is at the flowering-early podding stage. At this stage the balance between feed value and yield is the best.
In crop mixtures with cereals or rye grass varieties of these crops have to be chosen to mature at the same time as the vetch crop.

Seed production

Average over 10yr's is approximately 1.2t/ha under dry land conditions. Harvesting is easily achieved by using cereal harvesters with crop lifters.

Ability to spread

Not possible to spread by animals or birds. When animals ingest grain it breaks down completely. If soft seeded varieties are sown, any residual seed germinates in the following crop and is easily controlled with broadleaf herbicides.

Weed potential

New common vetch varieties (Mor & Ras) are soft seeded varieties and have no potential to be a weed in subsequent crops. But, varieties (BF & LNG) have 5-20% hard seeds and can potentially be a weed in the following 2-3yrs.
In cereal crops the voluntary common vetches can be easily controlled by many broadleaf herbicides that are regularly used for controlling broadleaf weeds.

Major pests

Redlegged earth mite, lucerne flea, bluegreen aphid, cowpea aphid and Heliothis/native bud worm.

Major diseases

Rust (Uromyces viciae-fabae), Ascochyta (Ascochyta blight), Chocolate spot (Botrytis spp).

Herbicide susceptibility

Tolerant of most grass-selective herbicides.
Intolerant of herbicides residues from cropping phase, particularly sulfonylurea herbicides.
Susceptible to spray topping herbicides (Glyphosate, Paraquat & Diquat) as well as to most broad leaf herbicides that are used in cereal crops.

Animal production

Feeding value

Hay samples have shown very high animal feeding values: crude protein (16-28%), digestible (50-82%) and metabolise energy (7-11MJ).

Palatability

Readily consumed by livestock, either as green or dry feed, including mature seed pods.

Production potential

Excellent feed for growing and finishing livestock.
Dry residues of plants and pods, after spray topping provides a useful grazing crop through the summer.

Livestock disorders/toxicity

Plants infected by rust can cause abortion in pregnant ruminant animals.

Cultivars

Group	Cultivar	Seed source/Information
Very early maturity	Languedoc	<95 days from seeding to flowering; adapted to low rainfall (>275 mm) areas with sandy loams to loams. Susceptible to rust, ascochyta, red-legged earth mite, lucerne flea, blue green aphid, cowpea aphid and Heliothis. Susceptible to shattering. For hay productions it has poor leaf retention.
Early maturity	Rasina Φ	95-105 days from seeding to flowering; adapted to low/medium rainfall (>300 mm) areas. Resistant to rust and tolerant to Ascochyta. Susceptible to red-legged earth mite, lucerne flea, blue green aphid, cowpea aphid and Heliothis. Tolerant to shattering for grain production. For hay production it has poor leaf retention. Planttech
	Blanchefleur	100-110 days from seeding to flowering; adapted to medium rainfall (>300 mm) areas. Susceptible to rust, ascochyta, red-legged earth mite, lucerne flea, blue green aphid, cowpea aphid and Heliothis. Susceptible to shattering for grain production. For hay productions it has moderate leaf retention.
Later maturity	Morava Φ	110-125 days from seeding to flowering; adapted to medium rainfall (>350 mm) areas for grazing, it also performs well for hay/silage and grain in high rainfall (400mm) areas. Resistant to rust and tolerant to ascochyta. Morava is a big plant and at flowering if a rain occurs it can be infected by chocolate spot. Susceptible to red-legged earth mite, lucerne flea, blue green aphid, cowpea aphid and Heliothis. Very tolerant to shattering for grain production. For hay productions it has very good leaf retention. Planttech

Φ Denotes that this variety is protected by Plant Breeder's Rights Australia

Further information

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Acknowledgements

Information has been adapted from
"Vetch Fact Sheet"
" Morava Technical Dossier"
"Rasina Technical Dossier"
"Vetch Sowing Guide"

Author and date

Rade Matic, SARDI (08) 8303 9377
Stuart Nagel, SARDI (08) 8303 9359
Gregg Kirby, SARDI (08) 8303 9359

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