Capello

Woolly Pod Vetch

Vicia villosa ssp. dasycarpa

DOMESTIC

KEY FEATURES

- Mid-season -126 days
- Softer seeded than other woolly pod vetches
- Suitable for grazing, hay and green manuring
- Highly efficient nitrogen fixation
- Offers a disease break in cropping rotations
- Resistance to spot, rust and ascochyta

KEY BENEFITS

- Capello has the ability to produce high dry matter yields through winter and spring. It can also add high quality feed and bulk when mixed with cereals for hay
- The soft seed habit of Capello, combined with its high biomass and nitrogen production, makes it a great crop rotation option
- Reduces problems of volunteer vetch plants
- Proven to reduce black root rot in cotton rotations

CAPELLO woolly pod vetch was derived from selections out of Namoi woolly pod vetch. It demonstrates mid maturity along with a semi-erect growth habit. CAPELLO is suited to a wide range of soil types, performing better on lighter soil types, compared to other vetch species. CAPELLO can provide growers with a soft seeded alternative to traditional hard seeded woolly pod vetch varieties, which can cause problems in future legume crops due to regeneration from the hard seed. This makes CAPELLO well suited to short term cropping rotations whilst providing the added benefits of moderate drought tolerance and being a highly efficient and effective soil nitrogen producer. Mature plants form a dense canopy, providing strong weed competition. CAPELLO is ideal as a break crop and is well suited for hay production or turned in as green manure crop to improve soil health.

Growing Conditions

Soil Type:
Capello is suited to a wide range of soil types, performing better on lighter soil types, compared to other vetch species. It is not well adapted to waterlogging areas. Prefers neutral soils but can grow in slightly acid to alkaline ground

Rainfall:
325mm+

Sowing Rate:
Grain 25 - 40kg/ha
Hay/Silage 30 - 45kg/ha
Grazing 30 - 45kg/ha
Green Manure 45 - 50kg/ha

pH:
5.0 - 8.0 ($CaCl_2$)

Inoculant:
Group E Rhizobium

Disease Pest Resistance

Capello demonstrates resistance to chocolate spot (Botrytis), rust (Uromyces vicia-fabae) and ascochyta (Ascochyta spp.). Capello woolly pod vetch adds to the rotation by providing an excellent alternative crop for controlling cereal root diseases. Capello, like all vetches, is susceptible to red-legged earth mites (Halotydens destructor), cow pea aphid (Aphis craccivora) and native bud worm (Helicoverpa punctigera) and appropriate control measures should be taken, especially in seedling stands.

Agronomy and Management

Regeneration Capello has 80–90% soft seed. Other varieties of woolly pod vetch generally only have 10–20% soft seed. This is a significant advantage in the reduction of volunteer vetch plants for following seasons in short term cropping rotations. Grazing vetch is not suited to close grazing as their growing points are well above ground level. However, in longer season environments, Capello can be lightly grazed successfully during winter and early spring provided that the growing points are not damaged. Heavy grazing can cause significant damage to the plant, and it may not recover. Bloat can be a problem on pure legume stands and stock will have to be watched if grazing green vetch paddocks. Capello grain (and other woolly pod types) is toxic to stock and hence care must be taken with grazing management. Grazing or cutting for hay must not be done after pod set.

Comparison of Vicia Varieties			
	Capello	Haymaker	Namoi
Time to Flowering	Mid 126 days	Mid 126 days	Late 130 days
Height at First Flower	254	302	290
Pod Length	26.8	26.6	26.9
Seed Dormancy (Hard seed%)	10-20%	80%	80%

Woolly Pod Vetch Agronomic Information

Scientific name(s) *Vicia villosa ssp. dasycarpa*

Strengths

- An annual pasture/forage/grain legume, palatable green and as dry matter/hay/silage
- Very high animal feeding value as green and dry plant
- Very high in dry matter production (5-12t/ha) and highly acceptable as hay/silage as well for green manuring. WPV offers 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 as a legume crop fixes atmospheric nitrogen that is beneficial in field crop rotation as well as in orchards, vineyards and cotton production
- 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 for cereal diseases
- For vetch planting, maintenance, cutting and harvesting farmers can use the same machinery that they use for cereal crops
- Provides non-selective weed control options for reducing the risk of herbicide resistant weeds in cropping phases (e.g. grazing, green manuring, and hay production, spray-topping)

Limitations

- Grain cannot be used for feeding any livestock
- Varieties are hard seeded (10-70%) and can occur as voluntary plants/weeds in following crops for many yrs
- Initial growth is poor and requires clean land before seeding. In early growth stages it is a very poor competitor to weeds
- Cannot perform well in low/medium rainfall (<400mm/yr.) areas
- Not well adapted to waterlogging
- In early growth stages they are sensitive to lucerne flea and in mid to later growth to cowpea aphids as well as to Heliothus in flowering and podding stages
- Herbicide options for broadleaf weed control are limited

Plant characteristics

Plant: winter growing annual, with multiple laterals branching from near the base.

Stems: weak stemmed climbing, 40-120cm high, green and hairy.

Leaflets: two pair, narrow green leaflets. The central leaf stalk containing 5-10 pair of leaves with a tendril on the top.

Flowers: small with multiple, 5-20 (10-20mm); colour- violet/purple.

Pods: length 20-30mm by 7-10mm with 2-5 seeds.

Seed: small to medium (100 seeds = 3.5-5.5g).

Pasture type and use

Woolly pod vetch (WPV) varieties in Australia are: Namoi, Capello & Haymaker. This species can be used as a pasture plant, hay/silage and green manuring crop. Plant establishment is much slower than common vetches (in 10-12 weeks reaching 10-15cm high. These varieties in Australian conditions grow rapidly during the second part of vegetation and generally are higher in dry matter production than common vetches.

Where it grows

Rainfall

Annual rainfall >450mm (growing season rainfall >350mm).

Adapted and grown in southern Australia for grazing/green manuring or just grazing as well as for hay/silage and seed export. In subtropics, in northern New South Wales and southern Queensland, mainly as a green manure in cotton production, orchards and vineyards.

Soils

Adapted to a medium and heavier soils of moderate fertility.

Prefers neutral soils, but can grow in slightly acid (pH 6.3) to alkaline (7.5-7, 8pH) soils.

Not tolerant to long periods (>7days) of water logging or salinity.

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.

In Europe it is grown as a 'companion' crop between rows of corn and sunflower to provide nitrogen to 'companion' crops.

Vetch as an annual legume can be grown with perennial legumes to provide more bulk and feed in the first year of seeding.

Sowing/planting rates as single species

See table on the following page - Plant and density and recommended seeding rates for vetch.

Sowing/planting rates in mixtures

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

Sowing time

For early feed/grazing obviously an early (mid-April- May) sowing time is needed, especially in lower rainfall areas. Dry matter production is significantly reduced if sowing is delayed to end of June or July (for southern Australia).

Inoculation

Commercial Group E.

Fertiliser

This species has much slower initial growth, compared with common vetch, and requires 25-50kg/ha of nitrogen. Phosphorus at 50-75kg/ha is very important to be added at sowing time, and generally provides a good start and growth.

Management

Maintenance fertiliser

Generally 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. 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.

Plant and density and recommended seeding rates for vetch						
	Common vetch varieties		Woolly pod vetch varieties		Purple vetch variety	
End-use	Plant density (plants per sq.m.)	Sowing rate (kg/ha)	Plants density (plants per sq.m.)	Sowing rate (kg/ha)	Plants density (plants per sq.m.)	Sowing rate (kg/ha)
Grain	40-60	40-50	40-50	25-40	40-50	25-40
Hay/silage	50-70	50-60	50-60	30-45	50-60	30-45
Grazing	50-70	50-60	50-60	30-45	50-60	30-45
Green manure	60-70	55-65	60-70	45-50	50-60	30-45

Grazing/cutting

Least resistant to grazing than common vetches. Regrowth is dependant significantly on rain or available moisture after grazing.

All current WPV are palatable for grazing and for hay/silage production.

This species can be grazed only after it reaches 15 nodes (>50cm high) and up to flower, not before 15 nodes or after flowering - otherwise it can cause problems or even death of livestock.

The vetch plant and hay nutritive and feeding values 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 plant stage.

As 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 use the best time to cut WPV is at the flowering stage before pod set. Hay should not be made after pod set, due to grain toxicity.

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.

Cereal machines are recommended for cutting and bailing.

Ability to spread

Small possibility to be spread by animals or birds.

Weed potential

The hard seeded cultivars Haymaker and Namoi can cause future issues with regeneration in paddocks.

In cereal crops, the voluntary vetches can be easily controlled by many broadleaf herbicides that are regularly used for controlling broadleaf weeds.

Major pests

Lucerne flea, blue-green aphid, cowpea aphid and Heliothis.

Major diseases

Ascochyta (Ascochyta blight), Chocolate spot (Botrytis spp).

Herbicide susceptibility

Tolerant of most common grass-selective herbicides, check labels.

Intolerant of herbicide residues from cropping phase, particularly sulfonylurea herbicides.

Susceptible to spray topping herbicides (Glyphosate, Paraquat & Diquat) as well to most broad leaf herbicides that used in cereal crops.

Animal production

Feeding value

Hay samples show very high animal feeding values: crude protein (16-28%), digestible (50-82%) and metabolise energy (7-11MJ). Hamilton Veterinary Institute - data of 225 samples of mixed vetch species.

Palatability

Green and dry plants are palatable for all ruminants.

Production potential

Excellent feed for growing and finishing livestock.

Dry residues of plants after spray topping provide a useful grazing crop through the summer.

Very good potential for exporting pure seeds to overseas countries for pastures, hay and green manuring.

Livestock disorders/toxicity

Many reports have shown grain toxicity from this species has caused toxicity and even death of livestock.

Characteristics of selected vetch varieties

Variety	Maturity	Yield potential		Flower colour	% of		Disease reaction		
		Grain	Dry matter		Pod shattering	Hard seeds	Rust	Ascochyta	Botrytis
COMMON VETCH VARIETIES (*VICIA SATIVA*)									
Studenica[Φ]	Very early	High	High	White	0-2	0	R	MS	S
Volga[Φ]	Early	Very high	High	Purple	0-2	2-5	R	MS	S
Rasina[Φ]	Early-mid	High	Moderate	Purple	0-2	0	R	MS	S
Blanchefleur	Mid	High	Moderate	White	5-10	5-10	VS	MR	S
Timok[Φ]	Mid	High	Very high	Purple	0-2	0-2	R	MS	S
Morava	Late	High	High	Purple	0	0	R	S	VS
PURPLE VETCH (*VICIA BENGHALENSIS* SUBSP. *BENGHALENSIS*)									
Popany	Very late	Low	High	Purple	20-30	5-10	R	S	VS
WOOLLY POD VETCHS (*VICIA VILLOSA* SUBSP.)									
RM4[Φ]	Mid	Moderate	Very high	Purple	2-5	2-5	R	MS	VS
Capello	Late	Low	Very high	Purple	5-10	15-20	R	S	VS
Haymaker	Late	Low	Very high	Purple	5-10	20-30	R	S	VS

Source: Pastures Australia, GRDC Crop Sowing Guide and Barenbrug

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