



A collaboration between AWI, GRDC, MLA, RIRDC and Dairy Australia

## Creeping vigna

### Scientific name(s)

*Vigna parkeri*

### Strengths

- Persistent under heavy grazing
- Moderate shade-tolerance
- High quality feed
- Spreads under grazing
- Capable of ascending tall tropical grasses
- Adapted to acid soils

### Limitations

- Susceptible to drought
- Sensitive to frost
- Seed harvest difficult
- Susceptible to stem rot in mature stands

### Plant description

**Plant:** A creeping, soft-stemmed, mat-forming perennial legume.

**Stems:** Two types of stem, both soft, fine and slightly hairy; one creeping along the ground and rooting at the nodes (stolons), and the other more erect, and weakly twining on associated plants to about 50 cm high.

**Leaves:** Comprise three slightly hairy, dark green, broadly egg-shaped leaflets, commonly about 4 cm long and 3 cm wide, mostly with a pale crescent leaf marking across the leaf similar to that on white clover.

**Flowers:** Mostly borne in groups of 2 - 5; each flower about 1 cm across, and butterfly blue in colour.

**Pods:** Usually 1 - 2 cm long and 0.5 cm wide, each bearing 1 - 5 seeds. Shatter readily when dry.

**Seeds:** Oblong-ovoid, 3 - 5 mm long, 2 - 3.5 mm wide, grey to brown with black mottling, sometimes entirely black; 75,000 seeds/kg.

### Pasture type and use

Grown in association with sward-forming and tussock grasses in permanent, intensively managed pastures.

### Where it grows

#### Rainfall

Creeping vigna requires good moisture, growing best in areas receiving at least 1,200 mm rainfall, with warm season dominance. Late season rainfall is essential for successful seed-set.

#### Soils

It is mostly grown in areas with sandy to light clay soils, with pH(water) between 5 and 6,

sometimes as low as 4 (often with moderate levels of soluble aluminium) and as high as 7. It prefers at least moderately fertile soils, responding to phosphorus and molybdenum on poorer soils.

### **Temperature**

Creeping vigna originates from the upland tropics where temperature extremes are uncommon throughout the year. In the lowland subtropics, growth slows during the heat of summer, the best growth being produced during moist periods in spring and autumn. Top growth is killed, even by light frosts, but stands regenerate readily from surviving root-stocks and stolons with the onset of warm conditions.

## **Establishment**

### **Companion species**

Grasses: Kikuyu, mat (carpet) grass, pangola, paspalum, rhodes grass, setaria. Grasses should not be allowed to grow too tall.

Legumes: Greater lotus (e.g. Maku), greenleaf desmodium, white clover

### **Sowing/planting rates as single species**

Not sown as single species.

### **Sowing/planting rates in mixtures**

2 - 3kg/ha

### **Sowing time**

Sowing is best carried out when there is a high probability of follow-up moisture. In frosted areas, creeping vigna should be sown in spring, once the probability of frost is negligible, to give as long a period as possible for establishment prior to onset of next frosts.

### **Inoculation**

Although creeping vigna is not highly specific in its inoculum requirements, it is best to inoculate seed with Group I (Cowpea) or Group M inoculum prior to sowing.

### **Fertiliser**

A planting dressing equivalent to 200 kg superphosphate/ha and 300 g sodium molybdate/ha may be required on more acid infertile soils.

## **Management**

### **Maintenance fertiliser**

Where creeping vigna is growing with competitive grasses such as kikuyu and setaria, monitor plant vigour and leaf colour for signs of developing deficiency, applying fertiliser accordingly. Alternatively, apply with follow-up dressings from time to time.

### **Grazing/cutting**

It is tolerant of prolonged heavy grazing, but to achieve highest levels of production, it is best to maintain the stand between about 20 and 40 cm deep. Grazing pressure should be set to produce a low leafy canopy.

### **Seed production**

Crops are best grown with less competitive grasses such as mat (carpet) grass to suppress weeds and to raise the crop to header height, and availability of irrigation is an advantage. Creeping vigna commences flowering in late summer, with a peak in late autumn-early winter. Accordingly, crops ripen during winter and should be sited in frost-free areas. Ripe pods generally hold within the canopy, but shatter under hot, dry conditions. Thresher settings should be such as not to damage the fragile seed (e.g. drum speed 500 - 600 rpm, concave quarter open, fair wind over partly closed adjustable sieves. Commercial seed yields are usually of the order of 100 kg/ha.

### **Ability to spread**

Creeping vigna can spread large distances by virtue of seed passing through livestock, and more locally by stolons.

### **Weed potential**

Since creeping vigna is not aggressive, is readily eaten by cattle, and is adapted to a fairly restricted environment, it poses no weed threat.

### **Major pests**

Damage from leaf miner and leaf eating beetles have been noted but rarely cause severe damage.

### **Major diseases**

Although susceptible to a number of diseases, including root-knot nematode, stem blight, and leafspot, disease is rarely a problem in well-grazed pastures. Leaf and stem diseases can cause problems in seed crops, where there is an accumulation of mature vegetation.

### **Herbicide susceptibility**

Susceptible to hormone herbicides such as 2,4-D.

## **Animal production**

### **Feeding value**

Feeding value is relatively high for a tropical legume, the leaves containing about 25% crude protein and the stems 12%.

### **Palatability**

Creeping vigna is selected by cattle, and its presence in a mixed pasture improves intake of associated grasses such as kikuyu.

### **Production potential**

While there are no experimental data, dairy cows perform well on creeping vigna based pastures.

### **Livestock disorders/toxicity**

None recorded.

## **Cultivars**

<b>Cultivar</b>	<b>Seed source/Information</b>
Shaw	Heritage Seeds Australian Herbage Plant Cultivars

## **Further information**

Tropical Forages database (SoFT) - Creeping vigna

## **Acknowledgements**

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## **Author and date**

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