



Herbage Development Fact Sheet 9 • By Eric Hall and Andrea Hurst

Variegated lucerne (alfalfa), cv. KI creepa^(b)

(*Medicago sativa* L. x *falcata* L.)

Origin

Recurrent phenotypic selection: 4 cycles of recurrent phenotypic selection for seed production, vigour, uniform flowering and uniform growth habit. Bred from parent material collected as vegetative material in the field by Eric Hall et al, South of Currie, King Island, Tasmania (39°58' S 143° 54' E). The parent material was collected from surviving plants from a stand of the cv. Cancreep, established over 40 years ago.

Breeders

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Plant description

KI creepa^(b) is a deep-rooted, shortly rhizomatous (Figure 1), perennial legume. It has fine stems, semi erect to erect in habit, growing to 80 cm high at 10% flower. Leaflets tend to be narrow oblong, reflecting the influences of *M. falcata*. Flowers: pea flowers, mostly light purple/purple in colour (Figure 2), a percentage of the flowers exhibit the influences of *M. falcata* in having variegated yellow and green tinges. Flowers are borne in clusters to 4 cm long at the tops of the stems. Pods: 3–5 coils in a spiral, produced in clusters; up to 5 seeds/pod.

Major attributes

KI creepa^(b) is a long lived, winter dormant, rhizomatous lucerne with a dense growth habit, producing a dense sward of fine leafy stems through spring and summer. It has high level of drought and cold tolerance and once established can tolerate close grazing by sheep.

Seasonal production

KI creepa^(b) is a winter dormant lucerne with a dormancy rating of 2–3. KI creepa^(b) is most productive through the warmer months of spring/summer.

Drought tolerance

Once established KI creepa^(b) develops a very strong taproot giving the plant the ability to survive extended dry periods.

Cold tolerance

Has shown improved cold tolerance over traditional lucernes. Tolerating frosts to

–9° C in central Tasmania with little or no frost damage.

Waterlogging tolerance

KI creepa^(b) has shown to be tolerant of short periods of waterlogging.

Salt tolerance

Low.

Soil and climate requirements

Best adapted for sowing in temperate low to medium rainfall areas receiving 350mm to 900mm average annual rainfall. KI creepa^(b) prefers deep, well-drained soils (sands to moderately heavy clays) with a pH ranging from slightly acid to alkaline. It is intolerant of high levels of exchangeable aluminium. At evaluation sites in Tasmania plants have survived years where annual rainfall has been as low as 250mm.

Maturity

When ungrazed KI creepa^(b) flowers late November. Seed matures mid January.

Seed size

Small, green to yellow to light brown in colour; kidney shaped; 440,000–500,000 seeds/kg (white clover 636,000 seeds/kg).

Hard seed

100% soft seeded.

Seed treatment

Seed must be inoculated with appropriate rhizobia prior to sowing.

Rhizobium

Seed must be freshly inoculated with Group AL rhizobia and lime coated. Some pre-inoculated processes may be effective for up to 6 months, but caution is required.

Sowing methods

Drilled, direct drilled or broadcast onto a prepared seedbed.

Sowing depth

Best sown at 5–10 mm.

Sowing rate

2–3 kg/ha in a mixed sward with perennial grasses, 5–8kg in a pure sward, depending on seedbed quality.

Fertiliser

Based on soil tests, potassium (K), phosphorus (P) and sulphur (S) levels need to be maintained at the following levels: K: 300 mg/kg, P: 25 mg/kg, S: 10 mg/kg. Lucerne responds to the trace elements magnesium, manganese, zinc, molybdenum, boron and copper. Deficiencies can occur on marginal fertility soils. Soils with pH lower than 5.5(water) will require an application of 1–5 t/ha of lime to improve the chances of successful establishment. Aluminium toxicity in lucerne can occur on soils with pH of lower than 5.5 (water) or 4.7 (calcium chloride).

Sowing time

Preferably sown in late winter/early spring, but can be sown in late summer to early autumn if competition from weeds is not a high risk.

Land preparation

A well-cultivated, firm seedbed is required for best results. For direct drilling or broadcasting there should be total control of annual weed species and adequate soil moisture prior to sowing.

Herbicides

Herbicides can be used to take out grasses or broadleaved weeds selectively, or can be used pre-planting or post-planting to tackle weeds at different stages of crop development. Check labels for the herbicides that are registered for use in lucerne.

Compatibility with other species

Suitable for sowing with other forage grasses and legumes with low to moderate seedling vigour. May be out competed by high sowing rates of more vigorous species. If sown in a mixed sward with grasses, the initial management should be to favour the lucerne establishment e.g. let the lucerne flower prior to the first graze/cut.

Suggested mixes

KI creepa^(b) is highly compatible with the grasses; Uplands^(b) cocksfoot, winter active tall fescue and phalaris.

Seedling vigour

KI creepa^(b) has been selected for its improved seedling vigour.

Grazing management

Once established KI crepea(♢) can tolerate regular grazing, however, for long-term persistence KI crepea(♢) it is best to be rotationally grazed.

Cutting

The fine leafy stems of KI crepea(♢) make it an ideal plant for hay production under irrigation in summer. If making hay, plants are best cut at 10% flowering.

Dry matter yield

KI crepea(♢) compares favourably with lucernes of similar winter activity eg Prime. KI crepea(♢) has yielded upto 13 t/dm/ha dryland,, at Cressy, Tasmania. (Figure 3)

Feed value

Highly digestible, declining slowly with maturity.

Typical feed test figures

Crude protein (%DM)

25.3

Digestibility (%digestible DM)

75.1

Metabolizable energy (MJ/kg DM)

11.8

Anti-quality factors

To avoid the risk of bloat, nitrate poisoning and red gut, do not graze immature/lush plants, especially with hungry stock (pre-feed with dry roughage).

Seed harvest methods

Direct heading, cutter rowing. Holds seed very well when mature.

Seed yields

Requires bees for pollination, yields of around 600kg/ha are achievable.

Leaf and stem diseases

Under moist conditions pepper spot or Cercospora leaf spot will cause leaf drop in mature stands of KI crepea(♢). No other leaf and stem diseases have been observed.

Root and crown diseases

No root or crown diseases have been observed on KI crepea(♢). However, a number of diseases can affect lucerne, including, Phytophthora root rot, Colletotrichum crown rot, Rhizoctonia canker (most significant,) violet root rot, Acrocalymma crown and root rot, Stagonospora crown and root rot (sometimes called

common root rot), Fusarium wilt, bacterial wilt, Sclerotium blight and Sclerotinia rot.

Pests

Resistant to pasture grub attack. Susceptible to red legged earth mite attack as seedlings, but established swards appear more resistant. Appears resistant to aphids and lucerne flea, but not fully tested at this time.

Animal performance

No data is available at this stage.

Acknowledgments

Pastures Australia pasture picker website: www.pasturepicker.com.au/tasmania_north.htm

Australian Herbage Plant cultivars website: www.pi.csiro.au/ahpc/legumes/legumes.htm

(♢) This variety is protected by Plant Breeders Rights

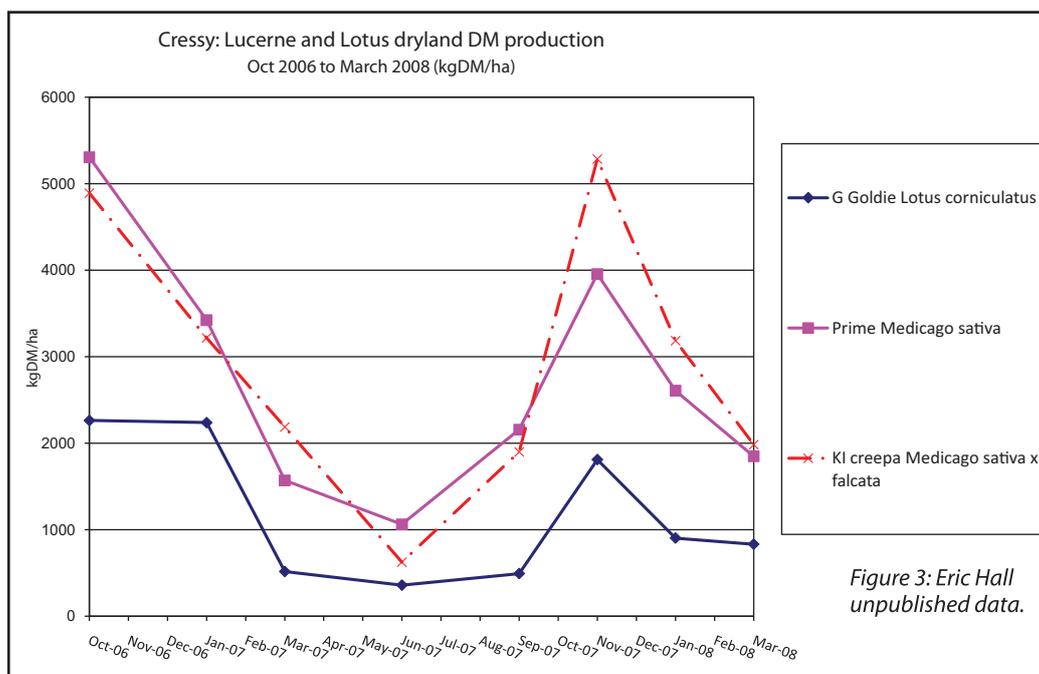


Figure 1: KI crepea(♢) rhizomes



Figure 2: KI crepea(♢) flowers

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