



Caliph Barrel Medic

Medicago truncatula

Caliph is an early – mid maturing and generally begins flowering 80 days after germination, up to five days earlier than Parabinga. Caliph is semi-prostrate in habit, has leaflets with a slight purple fleck on the underside and produces clockwise coiling pods. Caliph has a boron toxicity tolerance superior to that of all other medic cultivars. Caliph is recommended for neutral to alkaline soil types ranging from sandy loams to clays, in the medium to low rainfall zones.

- Earliest maturing aphid-resistant barrel medic
- Good seedling and early vigour
- Moderate tolerance of soil boron toxicity
- Resistant to spotted alfalfa aphid & blue green aphid
- High hard seed levels
- Suited to areas with as little as 250mm annual rainfall

Seed agronomy table

Flowering

80 Days

Min Rainfall (mm)	250
Hard Seed Level	9
Seeding Rate	Kg/Ha
Dryland	10-15
High Rainfall / Irrigation	15-20

Hard Seed Level 1 = Least Hard 10 = Most Hard

Enterprises this seed is being used for

Sheep
 Beef Cattle
 Horse
 Hay & Silage

Strengths

- Palatable at all growth stages, including dead leaves and stems, and seedpods over summer.
- High nutritive value with high protein content.
- Fixes atmospheric nitrogen, benefiting cereal crops grown in rotation.
- As a grass-free pasture in rotation with cereals it is a disease break for various cereal pathogens including cereal cyst nematode, root lesion nematode, take-all and crown rot.
- Provides non-selective weed control options for reducing risk of herbicide resistant weeds in cropping phases (eg grazing, green manuring, hay production, spray-topping).
- Hardseeded and once established will maintain a soil bank of seed reserves and will self-regenerate from that seed bank.
- More productive and persistent in low rainfall areas than sub clover.
- Outstanding complementary legume component for summer growing grass pastures in the subtropics.

Limitations

- Must not be sown too deeply.
- Winter production can be slow if autumn rains are late.
- Not well adapted to soils with pH(water) < 6.5, deep sands, waterlogged or moderately saline areas.
- Herbicide options for broadleaf weed control are limited.
- Seed harvest requires specialist vacuum harvesting machinery.
- Lush and/or pure stands can cause animal health problems.

Plant Description

Plant: semi-prostrate annual legume, 15 - 30 cm high, with metre side branches from near

the base.

Stems: prostrate to ascending, green and hairy.

Leaves: made up of three wedge-shaped leaflets, matt green, hairy on both sides and toothed on the end margin. The central leaflet stalk is longer than the other two, while in most clovers (*Trifolium* spp.) they are all of similar length.

Leaflet markings: may vary from none, to slight purple flecking, pale green "watermarks" edged in brown or large dark blotches.

Flowers: yellow, pea-like and in small clusters of 2 - 4.

Pods: barrel shaped, 6 - 12mm long, hardening when ripe, 3-8 coils, spines of variable length and 6-12 seeds per pod.

Seeds: pale yellow to light brown, kidney shaped, 200,000-320,000/kg.

Pasture type and use

Used as a self-regenerating autumn to spring growing annual legume in dryland cereal/livestock zones in southern Australia, in rotation with winter cereals, grain legumes and canola, and in association with grass in permanent pastures in the subtropical grain and pastoral zone. Once established its hard seededness allows it to regenerate from a seed bank after short cropping phases of typically 1 - 3 years.

Where it grows

Rainfall: Barrel medic requires an annual rainfall of 250 - 700 mm. A growing season rainfall of 150-300mm. Early flowering varieties are suited to lower rainfall zones.

Soils: Barrel medic is adapted to a wide range of at least moderately fertile soils, from sandy loams to clays. It prefers neutral to alkaline soils (pH water) > 6.5), not prone to waterlogging or salinity.

Temperature: It is an autumn-to-spring growing annual, best-suited to areas with mild growing seasons (15 - 25oC.)However, it will tolerate higher and lower temperatures.

Establishment

Companion species:

Grasses: annual ryegrass, volunteer cereals or sown cereals for grass/legume hay production, and with a range of summer growing grasses in the Subtropics.

Legumes: other annual medics (*Medicago* spp.), sub clover, lucerne.

Sowing/planting rates as single species: 10-15 kg/ha in southern Australia, 4-6 kg/ha in the subtropics.

*ensure seed is Goldstrike treated.

Sowing/planting rates in mixtures: 3-5 kg/ha in southern Australia, 2-3 kg/ha in the subtropics (3-4 kg/ha if undersown with crops). Undersowing with cereal grain or forage crops is an excellent management option for establishing barrel medic. Low sowing rates of the cereal grain crop (e.g. 15 kg/ha) are essential for success with undersowing.

*ensure seed is Goldstrike treated.

Sowing time: Sown April-June. Typically dry sown into the previous year's cereal stubble before the opening rains or into a moist, weed-free seedbed soon after the break. Shallow sowing (1-2 cm) is essential with press wheels, harrows or prickle chains to improve soil-seed contact and establishment.

Inoculation: Goldstrike Treated. The use of Goldstrike XLR8 seed treatment is recommended to reduce damage from insects at seedling stages.

Fertiliser: Phosphorous is generally the single most limiting macronutrient for barrel medics; sulphur may be required on some soils in the subtropics. Some soils, particularly infertile sands, may also be deficient in important trace elements (eg Cu, Zn, Mo and Co), some of which are directly involved in nitrogen fixation.

Management

Maintenance fertiliser: Generally barrel medics are grown in fairly close rotation with other crops which, if adequately fertilised, provide enough residual nutrients to maintain general soil fertility and medic growth. However, when sown in extended pasture phases on infertile soils in both southern Australia and the subtropics are likely to require topdressing with superphosphate at least. Soil testing is required to determine the need, timing and appropriate application rates. The trend towards high analysis fertilisers (eg DAP, MAP) in broadacre farming has also resulted in zinc deficiencies becoming more common on some soil types. Plant tissue testing is a more sensitive test for micronutrient deficiencies, some of which can be addressed in the short term with foliar sprays.

Grazing/cutting:

Establishment: defer grazing in the first year until plants are well established and then only graze lightly until flowering. Remove stock until medic has finished flowering and producing pods, to maximise seed-set for subsequent regeneration. Paddocks should not be "crash" grazed or cut for hay in the first year if the stand is expected to regenerate.

Regeneration: in crop/medic rotation systems, it is best to defer grazing at the break of the season until the ground is covered and/or medics are well established (approx. 6 leaves, 2-3cm height, >1000 kg/ha dry matter). Set stock to control upright grasses, weeds and to encourage prostrate growth, increasing grazing pressure as necessary to prevent overly 'bulky' pastures in early spring. Reduce grazing pressure if possible whilst medic are flowering to maximise pod and seed-set. In grass/medic pastures in the subtropics, moderate to heavy grazing in the late summer is needed to utilise the grass and minimise the competition for light by the establishing medic. This grazing management should be applied sequentially year by year as it will not be possible or desirable to graze all paddocks in this way each year. Summer grazing (southern Australia) carefully monitor grazing of dried residues over summer, as over grazing of pods, especially in the first year and on hard setting soils, will reduce future pasture regeneration.

Weed potential: Low environmental weed potential due to its preference for moderately fertile soils, and because of its specific rhizobial requirements, high palatability and readily grazing preference. As a self-regenerating plant it can be a weed of crops in crop/pasture rotations but easily controlled in cereals with a range of inexpensive broadleaf weed herbicides. Fewer options in grain legumes crops.

Major pests: Red legged earth mite, lucerne flea, blue green aphid, spotted alfalfa aphid, cowpea aphid, sitona weevil.

Major diseases: Phoma black-stem, rhizoctonia bare-patch, root lesion nematode and powdery mildew.

Herbicide susceptibility: Tolerant of grass-selective herbicides. Some herbicides available for selective control of certain broadleaf weeds. Spray-grazing and spray-topping techniques using less selective herbicides also available. Intolerant of some herbicide residues from cropping phase, particularly sulfonylurea herbicide residues in low rainfall areas with alkaline soils.

Animal production

Feeding Value: Has high levels of crude protein and digestibility. Digestibility ranges from 55-75% DMD, (equates to ME energy of 8-10 MJ/kg DM) and crude protein from 17-23% depending on growth stage.

Palatability: Readily consumed by livestock, either as green or dry feed, including mature seed pods. Excellent green feed for growing and finishing livestock, Dry residues and seed pods provide useful adjunct for maintenance of sheep grazing crop stubbles.

International Contact

For international enquiries please contact

Sean Coffey

International Business Manager

[+61 4 2865 2226](tel:+61428652226)

sean.coffey@pasturegenetics.com



Disclaimer: Pasture Genetics has taken all reasonable care in the preparation of this publication. The information contained is thought to be correct at the time of publication. Always seek professional advice from your local agronomist or Pasture Genetics representative prior to purchasing any products. Combined information provided courtesy of Pastures Australia and Pasture Genetics

14 -16 Hakkinen Road, Wingfield, SA • T 08 8445 1111 • F 08 8445 7777 • seed@pasturegenetics.com • pasturegenetics.com