



# Understanding Chicory

*Chicory provides high quality feed for various stock finishing systems during the spring and summer months.*

- Provides high quality feed
- Offers flexibility for sowing either in the autumn or the spring
- Can be sown as part of a permanent pasture blend
- Excellent persistence with a large tap root system
- Excellent alternative in low pH soils where lucerne doesn't grow

## Background

Chicory is a perennial herb which has proven to be an excellent source of high quality feed over the warmer growing season. It has demonstrated that it can produce high levels of dry matter production during spring and summer.

Chicory has exhibited good tolerance to soil acidity and has successfully been grown in areas with low pH soils where lucerne cannot be successfully established. It has a deep tap root which aids its persistence. Chicory has good disease resistance and tolerance to selected insects and, with appropriate management, can provide viable stands with sound productivity for many years.

Chicory is not a legume and for maximum production will require strategic applications of nitrogen in addition to its requirements for phosphorous and other nutrients. In most cases it is recommended that chicory be sown with a companion legume to supply both nitrogen and another source of high quality feed to the stand. Generally white or red clover is best suited, however, lucerne has also proven to be an excellent companion species.

Chicory offers a well-balanced ration with respect to crude protein, energy and minerals. Passage through the rumen is very rapid and sometimes the diet may lack sufficient fibre causing scouring. Feeding extra fibre does slow the passage through the rumen and gut and provides more effective rumen fermentation.

Chicory provides an opportunity to produce large quantities of high quality feed for milk production or finishing stock over spring and summer and into autumn. It is also important to note that there are two groups within the chicory family – perennial and bi-annual.

### Which Chicory?

There are two species of chicory that are sold domestically in Australia and both serve a purpose when utilised in the right situation. There are true perennial types which as the names suggests, have been bred to persist for 3+ years. The length of time for which they persist is determined by many factors such as fertility, pests, diseases, environment and overall management of the chicory. The growth habit for perennial type chicory is spring, summer and autumn with minimal production in the cold winter months. There are only a small number of perennial chicory varieties available that have the ability to truly persist (Puna, Puna II and Choice).

Short term or bi-annual chicory is selected out of vegetable type chicory and is therefore only able to only survive for 12-18 months. The newer chicory varieties that have been introduced over recent times have a higher degree of winter activity, but are short term types. The key with bi-annual types is the rapid decline in plant population within 18 months, but also the rapid stem production in the second year in order for it to survive.

It is important to identify what the chicory is required to supply in a pasture system before purchasing any varieties. Understanding whether a perennial type or a bi-annual type is needed must be the initial decision which should make the variety selection a little simpler.

### Agronomy Tips

#### Fertility

The soil pH range for chicory is very broad ranging from as low as 4.8 through to 7.5. The soil type is important when selecting a paddock to grow chicory, make sure that the soil is free draining and is not prone to water logging for extended periods of time. However, if chicory is going to be part of a pasture mix, then the other species and the soil pH tolerance will need to be taken into consideration.

The main nutrient for successful production of chicory is nitrogen. Ensure that phosphorus, sulphur and potassium are all adequate so the growth and production of chicory can be optimised. A soil test prior to sowing chicory is the best tool to understand the status of the soil fertility and correct this if needed.

#### Weed Management

There are limited options for weed control in a chicory pasture due primarily to not having any post emergent chemical registrations available. Prior to sowing, using pre-emergent herbicide is important to control some grass weeds as well as wireweed. Thistles are the most problematic weeds when growing chicory and trials have shown that Group I chemicals are too damaging.

Avoid sowing chicory where broadleaf weeds are a known problem until such time that they have been reduced significantly to allow chicory to establish without too much competition. To get information about how to manage weeds within a chicory pasture, consult your local rural retailer.

#### Insect Pest Management

Establishment of chicory is critical as this is when pasture pests can cause damage and ultimately reduce the population. Red Legged Earth Mite is the most damaging pest to chicory. These can be managed in a chicory pasture by using an insecticide, however, it is recommended to use Ultrastrike® treated seed which contains a seed treatment insecticide to protect emerging chicory seedlings. To get information about how to manage insect pests within a chicory pasture, consult your local rural retailer.

### Grazing Management

Chicory can establish very quickly when soil temperatures are high and soil moisture is adequate. This makes chicory an excellent option to sow in the spring time. The tap root system can follow moisture through the profile during the establishment period resulting in chicory being anchored well and able to withstand the initial grazing pressure. Implement the pulling test to make sure that the chicory plants are established well enough to withstand grazing.

There are recommended grazing management practices for optimum chicory production and persistence – these differ from season to season and from autumn sowing v spring sowing. Do not graze below 5cm so as to protect the crowns of the chicory plants. This will ensure that high levels of production are optimised as well as maintaining the stand for as long as possible. If grazing pressure is not managed correctly, then the quality of the chicory can also be affected with the plants looking to go reproductive and produce stem rather than more leaf. The leaf is highly digestible and is where the animals gain the benefits of grazing chicory while the stem is very low in digestibility and therefore less likely to be eaten by the grazing animal.

Chicory should ideally be rotationally grazed with a four block grazing system. This should allow grazing for one week of each block with a three week spell. Each block should be grazed no more than two weeks. During the cooler months extend the rest periods to produce enough feed for grazing. Avoid grazing during prolonged waterlogging in winter and early spring, as this can damage the base of the plant and reduce energy reserves.

**Table 1. Feed quality analysis (NSW Department of Primary Industries)**





Feed type (leaf)	Digestibility (%)	Energy (ME)	Crude protein (%)	Total N (%)
Chicory	70–80	9–11	14–24	2.2–4.3
Sub clover	53–80	8–10.5	13–21	2.08–3.42
Perennial ryegrass	50–77	7–9	9–27	1.4–5.26
White clover	54–82	8.8–12.3	17–24	1.65–4.7
Lucerne	48–77	7–11	13–24	1.6–4.6

**Animal Performance**

Puna chicory has proven to provide improved animal performance over summer compared to other pasture options. The microbial protein in the rumen of the grazing animal is higher when grazing chicory and is considered the main reason as to why there is greater protein efficiency. The structure and cell wall components of chicory are easily and quickly digested by the grazing animal. These factors result in a higher intake of feed and higher liveweight gains when grazing chicory.

**Table 2. Potential animal performance: chicory vs other pasture species in summer (NSW Department of Primary Industries, Agriculture Victoria, and Ag Research New Zealand)**

Species	Weight gain lambs (g/day)
Ryegrass	160–230
Cocksfoot	-180
Tall fescue	-260
Chicory	190–370
Lucerne	170–300
Forage rape	120–250

Category	Product	Icons	Ready to Graze	Sowing Rate	Rainfall Guide
Chicory			55-85 days	1-5kg/ha	Minimum 500mm per annum unless irrigated
			55-85 days	1-5kg/ha	Minimum 500mm per annum unless irrigated

**LET'S GROW TOGETHER**

Planning your forage and seed requirements in advance can make a big difference to your productivity. For over 75 years PGG Wrightson Seeds have been working with farmers to get the balance right.

**To discuss your growth plans call your Sales Agronomist now.**

Results will vary depending on all circumstances. PGG Wrightson Seeds (Australia) Pty Ltd and its officers, employees, contractors, agents, advisers and licensors of intellectual property (PGG Wrightson Seeds (Australia) Pty Ltd) provide no assurances, guarantees or warranties in relation to any advice, information, cultivar or product, other than those that must be provided by law. To the extent permitted by law PGG Wrightson Seeds (Australia) Pty Ltd excludes all liability, and has no liability to anyone, however arising, from or in relation any advice, information, cultivar or product. iWRI3525. PGG Wrightson Seeds (Australia) Pty Ltd ABN 83 004 227 927

